

MAR. 87
No. 6353R

JVC Service Manual

COLOUR SPECIAL EFFECTS GENERATOR

MODEL KM-2000

VICTOR COMPANY OF JAPAN, LIMITED

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

• Precautions during Servicing

- Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.
- Parts identified by the Δ symbol and shaded () parts are critical for safety.
Replace only with specified part numbers.
Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

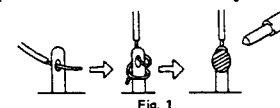
- Fuse replacement caution notice.
Caution for continued protection against fire hazard.
Replace only with same type and rated fuse(s) as specified.

- Use specified internal wiring. Note especially:
 - Wires covered with PVC tubing
 - Double insulated wires
 - High voltage leads

- Use specified insulating materials for hazardous live parts. Note especially:

| | | |
|--------------------|--------------------------------------|------------|
| 1) Insulation Tape | 3) Spacers | 5) Barrier |
| 2) PVC tubing | 4) Insulation sheets for transistors | |

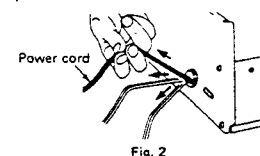
- When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.



- Observe that wires do not contact heat producing parts (heat-sinks, oxide metal film resistors, fusible resistors, etc.)

- Check that replaced wires do not contact sharp edged or pointed parts.

- When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

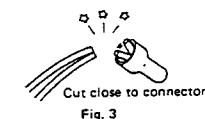


- Also check areas surrounding repaired locations.

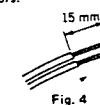
- Products using cathode ray tubes (CRTs)
In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

- Crimp type wire connector
In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

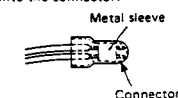
- Connector part number: E03830-001
- Required tool: Connector crimping tool of the proper type which will not damage insulated parts.
- Replacement procedure
 - Remove the old connector by cutting the wires at a point close to the connector.
Important: Do not reuse a connector (discard it).



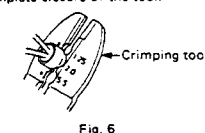
- Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.



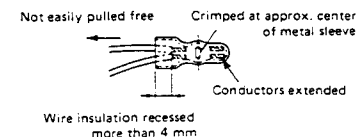
- Align the lengths of the wires to be connected. Insert the wires fully into the connector.



- As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.



- Check the four points noted in Fig. 7.



● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

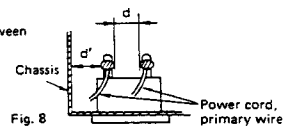
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

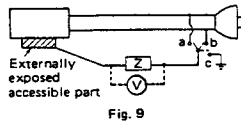


4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.



5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

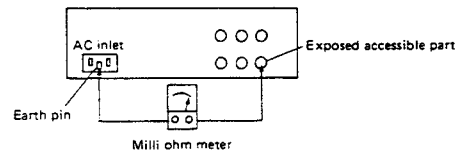


Fig. 10

Grounding Specifications

| Region | Grounding Impedance (Z) |
|--------------------|--------------------------|
| USA & Canada | $Z \leq 0.1 \text{ ohm}$ |
| Europe & Australia | $Z \leq 0.5 \text{ ohm}$ |

| AC Line Voltage | Region | Insulation Resistance (R) | Dielectric Strength | Clearance Distance (d), (d') |
|-----------------|--------------------|--|---|--|
| 100 V | Japan | $R \geq 1 \text{ M}\Omega/500 \text{ V DC}$ | AC 1 kV 1 minute | $d, d' \geq 3 \text{ mm}$ |
| 100 to 240 V | | | AC 1.5 kV 1 minute | $d, d' \geq 4 \text{ mm}$ |
| 110 to 130 V | USA & Canada | — | AC 900 V 1 minute | $d, d' \geq 3.2 \text{ mm}$ |
| 110 to 130 V | Europe & Australia | $R \geq 10 \text{ M}\Omega/500 \text{ V DC}$ | AC 3 kV 1 minute | $d \geq 4 \text{ mm}$ |
| 200 to 240 V | | | AC 1.5 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I) | $d' \geq 8 \text{ mm}$ (Power cord) $d' \geq 6 \text{ mm}$ (Primary wire) |

Table 1 Specifications for each region

| AC Line Voltage | Region | Load Z | Leakage Current (i) | a, b, c |
|-----------------|--------------------|--|--|--------------------------|
| 100 V | Japan | $1 \text{ k}\Omega$ | $i \leq 1 \text{ mA rms}$ | Exposed accessible parts |
| 110 to 130 V | USA & Canada | $0.15 \text{ }\mu\text{F}$ and $1.5 \text{ k}\Omega$ | $i \leq 0.5 \text{ mA rms}$ | Exposed accessible parts |
| 110 to 130 V | Europe & Australia | $2 \text{ k}\Omega$ | $i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$ | Antenna earth terminals |
| 220 to 240 V | | $50 \text{ k}\Omega$ | $i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$ | Other terminals |

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SECTION 1 GENERAL DESCRIPTION

1.1 INTRODUCTION

This manual provides service information for JVC colour special effects generator Model KM-2000. Service procedures given herein cover only field maintenance service.

Adjustments which require high level instruments, jigs and techniques are excluded.

E (EA, EG, EK) type for PAL model, U type for NTSC model.

Due to design modifications, the servicing procedures and data given in this manual are subject to possible change without prior notice.

1.2 WARNING

1. KM-2000U/E (NTSC and PAL versions)

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS UNIT TO RAIN OR
MOISTURE.

AVERTISSEMENT:
POWER EVITER LES RISQUES
D'INCENDIE OU D'ELECTROCUTION, NE PAS
EXPOSER L'APPAREIL A L'HUMIDITE OU A
LA PLUIE.

Warning Notice FOR YOUR SAFETY

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively earthed through the normal household wiring. Extension cords used with the equipment must be three-core and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities. The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

2. KM-2000E (PAL versions)

CAUTION! CHECK YOUR LINE VOLTAGE.

The KM-2000E has been preset for a line voltage of 220 V or 240 V. Before inserting the power plug, please check this setting to see that it corresponds with the line voltage in your area.

If it doesn't be sure, adjust the voltage selector to the proper setting before operating this equipment.

The voltage selector switch is located on the MAIN unit's rear panel.

Simply insert a screwdriver into the voltage selector and turn to adequate voltage.

WARNING – THIS APPLIANCE MUST BE EARTHED IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW: EARTH
BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is the wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BALACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

3. KM-2000U (NTSC version)



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

1.3 PRECAUTION FOR INSTALLATION

1. Use care that equipment is not subjected to strong vibrations or shock when installed or while being transported.
2. Avoid using in locations with high temperature or high humidity.
3. When operating fader levers, do not apply excessive force or handle roughly.
4. Equipment should be as nearly horizontal as possible when operating.

1.4 FEATURES

1. Eight inputs (VBS), three busses.
2. Two fader levers.
3. AUX input terminal for non-synchronous input.
4. Built-in chroma keyer with selectable chroma key color.
5. 13 wipe patterns with soft edge wipe control.
6. Built-in color background generator; adjustable background color.
7. Color downstream keyer with key edger and polarity select switch; adjustable insertion color.
8. B/W superimpose circuit with cut and fade switch.
9. External key input provided; switchable between chroma key and external key.
10. Vertical interval switching.
11. Built-in S.S.G.; external black burst signal, HD, VD and SYNC pulses provided. This makes possible genlocking with an external video signal or black burst signal in external genlock applications.
External S.S.G.; the external SSG makes possible pluse drive.
12. Intercom and tally circuits provided.
13. DSK PVM output provided.
14. PROGRAM FADE switch permits fade to black.
15. AUTO TAKE is possible from PREVIEW LINE to input-C LINE.

1.5 SPECIFICATION

1. KM-2000U (NTSC version)

| | |
|---------------------------------|--|
| Video inputs | : Eight composite video signals 1.0 Vp-p 75 ohms or high (BNC) |
| AUX input | : One composite video signal (non-synchronous) 1.0 Vp-p 75 ohms or high (BNC) |
| Chroma key inputs | : R.G.B. non-composite video signals 0.7 Vp-p 75 ohms or high (BNC) |
| External key input | : One composite or non-com- posite video signal 1.0/0.7 Vp-p 75 ohms or high (BNC) |
| D.S.K input (Downstream key) | : One composite video signals 1.0 Vp-p 75 ohms or high (BNC) |
| B/W superimpose input | : One composite video signal 1.0 Vp-p 75 ohms or high (BNC) |
| Ext. wipe MOD input | : 0 dBm nominal mini-jack (600 Ω) |
| Program output | : Three composite video signals 1.0 Vp-p 75 ohms (BNC) |
| Preview output | : One composite video signal 1.0 Vp-p 75 ohms (BNC) |
| Frequency response | : 60 Hz to 5 MHz ± 0.2 dB |
| DG | : Less than 1.5 % at 10 to 90 % APL |
| DP | : Less than 1.5 % at 10 to 90 % APL |
| S/N | : More than 55 dB (p-p/rms) |
| Sync output | : HD, VD, composite SYNC for external synchronization of B/W camera. 4 Vp-p 75 ohms. (BNC) Black burst signals 0.45 Vp-p 75 ohms. (Two) (with SETUP x 1, without SETUP x 1) For camera genlocking (BNC) |
| Synchronization system | : 1. Internal mode 2. External mode — Genlocked by composite video or black burst signal 3. Pulse drive mode — External SYNC, BL, HD, VD, BFP, SC |




Note: Required internal switching.
Refer to page 1-9.

| | |
|------------------------------|---|
| Subcarrier phase | : Adjustable from 0° to 360° |
| Coarse | : In steps (0°, 120°, 240°) |
| Fine | : Continuously variable between steps |
| Horizontal phase accuracy | : ± 0.1 microseconds (with refer- ence to the input synchroni- zation signal) |

Wipe patterns



Fig. 1-1

| | |
|------------------------------|---|
| Positioner | : Effective to    |
| Tally | : 5 V (10 mA) DC or dry contact by external switching |
| Intercom system | : Three headset jacks provided on the front panel of MAIN UNIT Made to PJ-051, #310 or TAD 3 type plug External input terminal provid- ed on the rear panel. |
| Ambient temperature range | : 0°C to 40°C (32°F to 112°F) |
| Power consumption | : AC 120 V 60 Hz 50 W (with Control unit) |
| Dimensions & weight | 1. Main unit 175(H)x482(W)x250(D)mm Standard EIA rack size (4 unit size) 10.5 kg 2. Control unit 265(H)x482(W)x90(D)mm Standard EIA rack size (6 unit size) 5.0 kg * The two units are connected with 5 m cables of 50 and 24 pin con- nectors. |

Accessories

| | |
|-------------------------------------|--|
| Power cord | : QMP9003-016 |
| Flat cable | : SC30301-50-050 (50 pin) SC30301-24-050 (24 pin) |
| Coaxial cable (BNC-BNC) | : SC30363-040 |
| BNC termination plug (75 Ω) | : SCV0286-001 |
| Mini plug | : QMS3581-002 |
| Assembly lamp | : SCV0302-100 |
| Extension board | : SCK1044 |

2 KM-2000E (PAL version)

| | |
|----------------------------------|---|
| Video inputs | : Eight composite video signals 1.0 Vp-p 75 ohms or high (BNC) |
| AUX input | : One composite video signal (non-synchronous) 1.0 Vp-p 75 ohms or high (BNC) |
| Chroma key inputs | : R.G.B. non-composite video signals 0.7 Vp-p 75 ohms or high (BNC) |
| External key input | : One composite or non-com- posite video signal 1.0/0.7 Vp- p 75 ohms or high (BNC) |
| D.S.K. input (Downstream key) | : One composite video signals 1.0 Vp-p 75 ohms or high (BNC) |
| B/W superimpose input | : One composite video signal 1.0 Vp-p 75 ohms or high (BNC) |
| Ext. wipe MOD input | : 0 dBm nominal (600 Ω) mini- jack |
| Program output | : Three composite video signals 1.0 Vp-p 75 ohms (BNC) |
| Preview output | : One composite video signal 1.0 Vp-p 75 ohms (BNC) |
| Frequency response DG | : 60 Hz to 5 MHz ± 0.2 dB : Less than 1.5 % at 10 to 90 % APL |
| DP | : Less than 1.5° at 10 to 90 % APL |
| S/N | : More than 60 dB (p-p/rms) |
| Sync output | : HD, VD, composite SYNC for external synchronization of B/W camera. 4 Vp-p 75 ohms. (BNC) Black burst signals 0.45 Vp-p 75 ohms (Two) (with SETUP x 1, without SETUP x 1)(BNC) |
| Synchronization system | : 1. Internal mode for camera genlocking 2. External mode — Genlocked by composite video or black burst signal 3. Pulse drive mode — External SYNC, BL, HD, VD, BFP, SC |




Note: Required internal switching.
Refer to page 1-9.

| | |
|------------------------------|---|
| Subcarrier phase | : Adjustable from 0° to 360° |
| Coarse | : In steps (0°, 120°, 240°) |
| Fine | : Continuously variable between step |
| Horizontal phase accuracy | : ± 0.1 microseconds (with refer- ence to the input reference signal) |

Wipe patterns



Fig. 1-2

| | |
|-----------------------------------|---|
| Positioner | : Effective to    |
| Tally | : 5 V (10 mA) DC or dry contact by external switching |
| Intercom system | : Three headset jacks provided on the front panel of MAIN UNIT. External input terminal pro- vided on the rear panel. |
| Ambient temperature range | : 0°C to 40°C (32°F to 112°F) |
| Power consumption | : AC 220/240 V 50 Hz 50 W (with Control unit) |
| Dimensions & weight | : 1 Main unit 175(H)x482(W)x250(D)mm Standard EIA rack size (4 unit size) 10.5 kg 2 Control unit 265(H)x482(W)x90(D)mm Standard EIA rack size (6 unit size) 5.6 kg * The two units are connected with 5 m cables of 50 and 24 pin con- nectors. |
| Accessories | |
| Power cord | : GP32473-5MO (EG version) GP32474-5MO-BS (EK version) QMP2468-500 (EA version) |
| Flat cable | : SC30301-50-050 (50 pins) SC30301-24-050 (24 pins) |
| Coaxial cable (BNC-BNC): | SC30363-040 |
| BNC terminal plug (75 Ω): | SCV0286-001 |
| Mini plug | : QMS3581-002 |
| Assembly lamp | : SCV0302-100 |
| Extension board | : SCK1044 |

1.6 CONTROLS, CONNECTORS AND INDICATORS

1.6.1 MAIN UNIT

— FRONT VIEW —

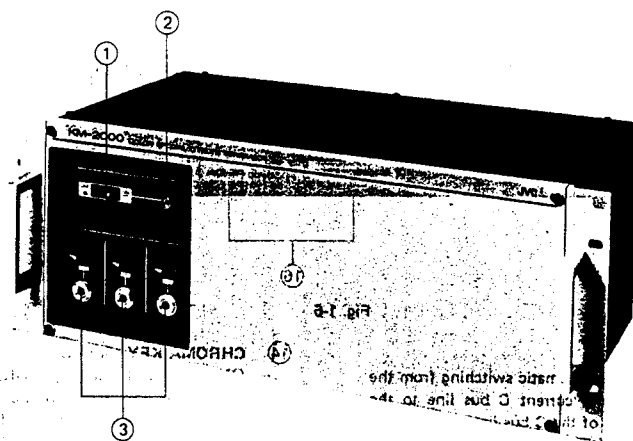


Fig. 1-3

FRONT

- ① **Power switch**
- ② **Power indicator**
This lights when the power is switched on.
- ③ **INTERCOM section**
These jacks are for the connection of up to 3 headsets; a control is provided by each for the setting of the volume.

REAR

- ① **COMPOSITE VIDEO INPUT connectors**
These are BNC terminals for the bridged connection of video inputs; when not bridged connected, terminate with the 75 Ω terminal resistor provided.
(Video inputs 1–8)
Input connectors for gen-locked video signals.
(GEN-LOCK)
Reference signal (VBS) input connector for synchronizing with external Composite Video signal.

(AUX)

For input of video signal not synchronized with system.

(SUPER)

For input of video signal to be superimposed.

(DSK)

For input downstream keyer (D.S.K.) video signal.

(EXT-KEY)

For input of external key video signal.

② CHROMA KEY INPUT Connectors

Bridged input connectors for CHROMA KEY signals (R.G.B signals without sync). If not bridge connected, terminate with 75 Ω terminal resistor provided.

③ SYNC PULSE INPUT connectors

SSG sync pulse input connectors when synchronizing with external SSG. terminated by built-in 75 Ω terminal resistor.

— REAR VIEW —

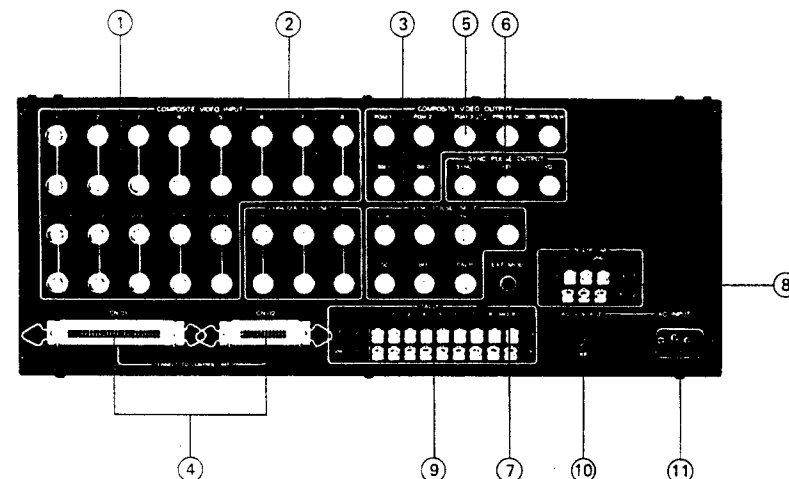


Fig. 1-4

④ CONTROL UNIT connectors

To be connected to the Control Unit with the cable provided.

⑤ COMPOSITE VIDEO OUTPUT connectors

(PGM1–3)

Program video output connectors

(PREVIEW)

Preview video output connector.

(D.S.K PREVIEW)

D.S.K (downstream keyer) preview output connector for preview use only.

(BB-1, BB-2)

75 Ω output connectors for B.B (Black Burst) signal to Gen Lock with other systems.

BB-1 without set-up

BB-2 with 75 % set-up

When the BB outputs are not used, terminate with 75 Ω terminal resistors.

⑥ SYNC PULSE output connectors

75 Ω output connectors for HD, VD, SYNC signal. Used to gen-lock superimpose and D.S.K signal sources.

⑦ EXT. MOD. connector

Requires 0 dBm (600 Ω) external modulating signal input (mini-plug). When using in wipe mode, the wipe pattern can be modulated by inputting an audio signal to this terminal.

⑧ INTERCOM connector

When connected to the intercom line of the video camera remote control (RS-2000 and RS1900), intercommunication is possible.

⑨ TALLY connectors

Tally signal output connectors, coupled with remote control tally line. Contact or Voltage feed can be selected by shorting or opening the MODE terminal on the right.
(Select switch "Voltage" to both the RS-2000 and RS-1900)

⑩ VOLTAGE selector (E Model only)

Select the line voltage.

⑪ AC INPUT

Connect the power cable provided.

1.6.2 CONTROL UNIT

— FRONT VIEW —

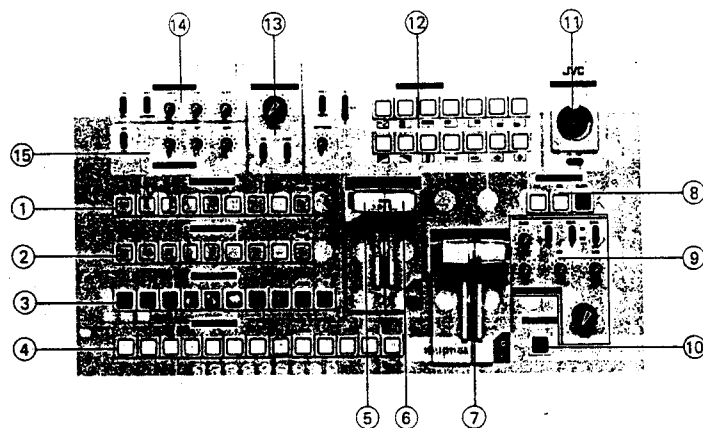


Fig. 1-5

FRONT

- ① **INPUT A bus-line**
Input A selector for MIX-SE (combination of A bus and B bus inputs) circuit. A total of video signals can be selected: 8 video signal inputs and the Internal Color Generator Signal (for color background). When a button is pressed, it lights to show the input selected.
- ② **INPUT B bus-line**
Input B selector for MIX/SE (combination of A bus and B bus inputs) circuit. The same 9 inputs as for Input A can be selected.
- ③ **INPUT C bus-line**
Input C selector for MIX (combination of MIX-SE output signal and C bus input signal) circuit. A total of 10 video signal can be selected; the 8 video signal inputs, color (color background) and MIX/SE output.
- ④ **PREVIEW bus-line**
Selector for preview monitoring the video signal before inputting to program. VIDEO INPUT (1-8), Super, SE (MIX/SE output), D.S.K, AUX AND PGM (line out) can be selected.
- ⑤ ⑥ **MIX/SE lever**
Input A and B mix/wipe control lever. If the MIX/KEY position of the WIPE MODE selector is selected, the amount of mix can be varied; if the WIPE pattern position is selected, the amount of wipe can be selected. Lever can be interlocked with a lock button or can be moved independently.
- ⑦ **MIX lever**
This varies the mix amount of the MIX/SE Output (combined output of A and B bus inputs) and video signal selected by the C bus. (It does not control wiping.)
- ⑧ **PROGRAM selectors**
AUX : The AUX input is output.
(This video signal is not synchronized by the KM-2000. When selected, the synchronization of the output line is disturbed.)
EFF : The PGM (line out) is output.
BLACK : A black signal (with 7.5% set-up) is output.
(Note: Switching from BLACK to EFF automatically fades in and switching from EFF to BLACK automatically fades out.)
- ⑨ **Downstream keyer control**
Controls keying of D.S.K video signal to MIX output (combination of A, B and C inputs).
SLICE : Determines the slice level of the D.S.K input signal.
NEGA/POSI: Inverts negative and positive.
EDGE : Turn ON when edging D.S.K signal.
D.S.K : D.S.K signal output ON/OFF switch.
HUE : Adjusts hue.
SAT : Adjusts color saturation.
LUM : Adjusts luminance.
LEVEL : Adjusts D.S.K signal output level.

— REAR VIEW —

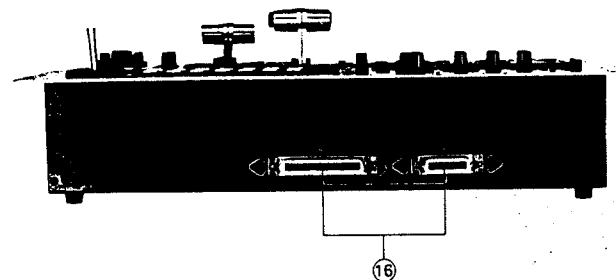


Fig. 1-6

- ⑩ **AUTOTAKE switch**
Pressing this allows automatic switching from the output signal of the current C bus line to the separate line signal of the C bus line selected with PREVIEW selector. The switched signal is output to PROGRAM out.
- ⑪ **POSITIONER joystick and switch**
When the patterns are selected with the WIPE MODE selector and POSITIONER switch is ON, the pattern can be moved to the required position on the screen with the joystick.
- ⑫ **WIPE Mode Selector**
MIX/KEY : This button is to be pressed when mixing inputs A and B.
WIPE MODE: The 13 wipe patterns indicated below the buttons can be selected.
N-R : Normal-Reverse switch
This switch changes the direction of the wipe.
SOFT/HARD: Changes the edges on the screen during wipes.
HARD : Hard edges.
SOFT : Soft edges.
SOFTNESS: When using soft wipes, the degree of softness can be varied.
- ⑬ **SUPERIMPOSE controls**
LEVEL : Varies the level of the superimposed video signal; used to determine the most natural inseting point.
ON/OFF : Superimpose on/off switch.
FADE/CUT: FEAD (AUTO FADE): When superimpose is turned on, it is inserted gradually.
CUT: When superimpose is turned on, it is inserted immediately.
- ⑭ **CHROMA KEY controls**
ON/OFF : Keying signal ON/OFF switch.
EXT/CHROMA: Selects between EXT KEY signal and CHROMA KEY signal.
COARSE : Six position knob for coarse adjustment of the keying signal color. Blue, cyan, green, yellow, red and magenta positions.
FINE : For fine adjustment of the keying color.
SLICE : Adjust to determine the most natural position of keying effect.
- ⑮ **Color Background controls**
ON/OFF : Color signal generator circuit ON/OFF switch.
HUE : For adjustment of hue.
SAT : For adjustment of color saturation.
LUM : For adjustment of luminance.

Rear

- ⑯ **Control Cable Connectors**
These are for the connection to the MAIN unit.
CN01 : 50-pin connector
CN02 : 24-pin connector

Note: These can be provided on the bottom of unit as well. Refer to page 2-3 (Section 2).

When the control unit is installed on a slanting table, the slanting angle should be within the range of 45° to the horizontal surface. Otherwise, the levers of the control unit might slide down by their own weight.

1.7 CONNECTION

When operating the KM-2000, the whole system should be Gen-Locked. Gen-Lock modes are three as described in the following.

1.7.1 INTERNAL MODE

This locks the whole system to the SSG in the KM-2000. The typical system is shown below.

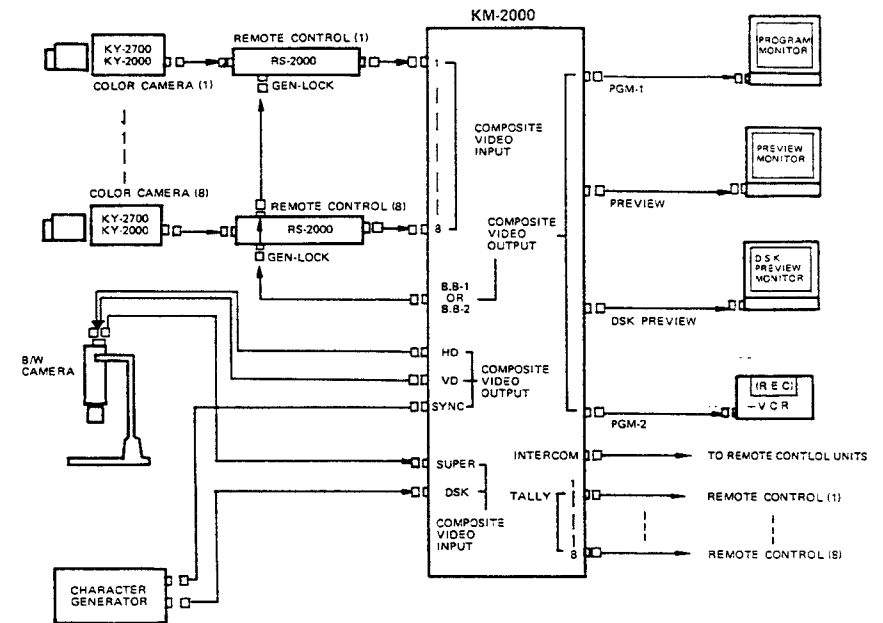


Fig. 1-7

- Note: 1) When putting video signals into KM-2000 (connecting with a video camera), use a terminating plug ($75\ \Omega$).
- 2) Connection into INTERCOM or TALLY terminals, refer to Sect. 1.10 (p. 1-17).
- 3) When the BB outputs (BB-1, BB-2) are not used, terminate with $75\ \Omega$ terminal resistors.

1.7.2 EXTERNAL GENLOCK MODE

This gen-locks the system to an external composite video signal (VBS).

(KM-2000 is gen-locked by No. 8 input video signal.)

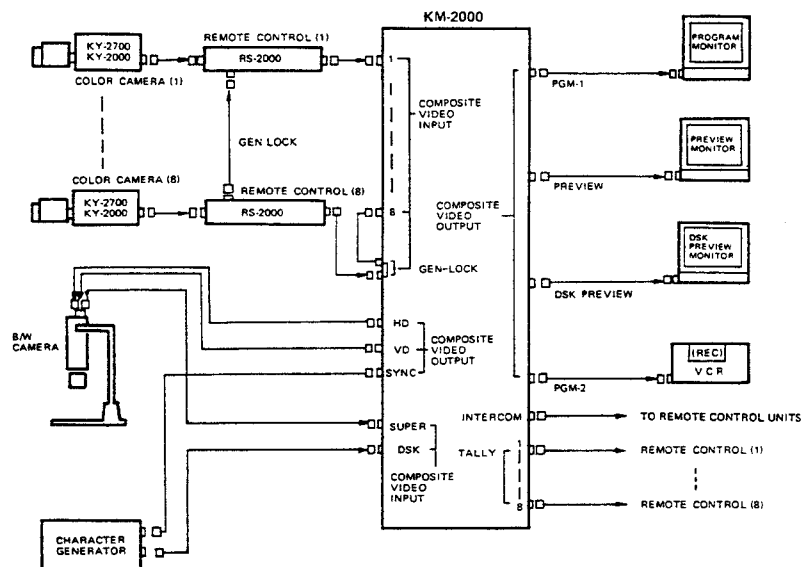


Fig. 1-8

Note: As shown below, it is possible to incorporate a color video camera without a gen-lock facility or another signal source into the system including the KM-2000.

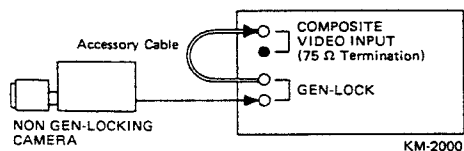


Fig. 1-9

Use the cable provided for the connection of the GEN-LOCK and the COMPOSITE VIDEO INPUT connectors. If the cable is not as specified, it is necessary to adjust the SC phase and H phase of the KM-2000 by the following method.

- 1) Loosen the four screws on the front panel of the main unit so that the front panel can be opened.

- 2) Select the picture of the gen-lock camera with the INPUT A bus-line switches, then operate MIX/SE and MIX levers and PROGRAM selector so that this picture is output to the PGM output.
- 3) Alternately switch between the INPUT and PGM of the gen-lock camera with the PREVIEW bus-line switches.
- 4) Now adjust the H. PHASE potentiometer on the SG board (bottom) of the KM-2000 so that the picture does not move to the left or right. At the same time, adjust the SC phase so that the colors match.

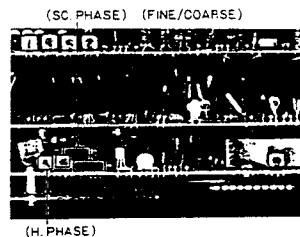


Fig. 1-10

1.7.3 EXT PULSE DRIVE MODE

This operates the KM-2000 with a drive signal from an external master SSG.

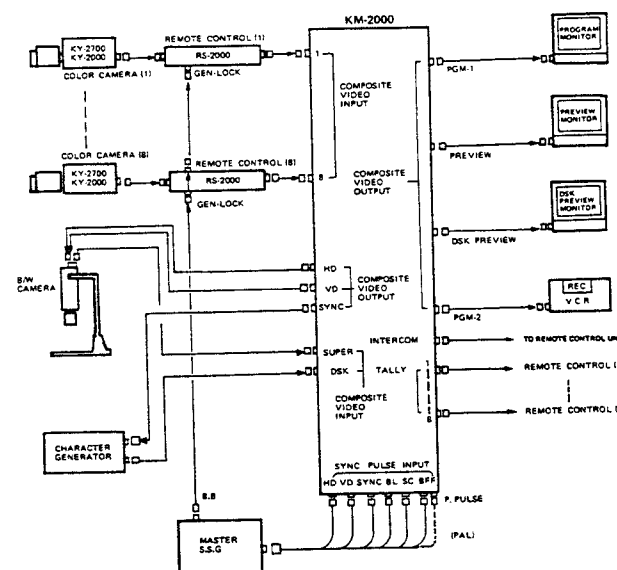


Fig. 1-11

[PREPARATION]

- 1) Open the front panel and switch the two INT/EXT switches (S1 and S2) on the SG board (at the bottom) to EXT.



Fig. 1-12

- 2) Connect the SYNC, BL, HD, VD, BPF (4 Vp-p nominal) and SC (2 Vp-p nominal) lines.
- 3) One of the cameras to be input to the KM-2000 must be fed with the camera signal through the GEN-LOCK. (This is because the timing pulse required for control is generated by the internal SSG of the KM-2000.)

This allows the KM-2000 to be driven with external SSG.

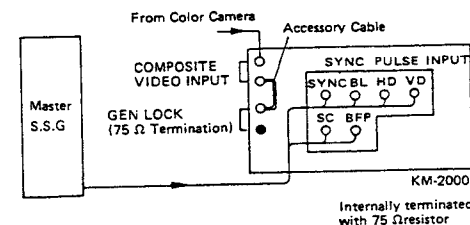


Fig. 1-13

- Note: 1) An external SC phase shifter will be required to bring SC into phase.
2) Use this system when a fully synchronized output is required. The stability of the system is in the order 3.1.2.

1.8 PRIMARY ADJUSTMENT

Each of the devices in a system will have a different signal level and hue setting so that level adjustment is necessary. (When a vectorscope or waveform monitor is connected to the PREVIEW output, more accurate adjustment is possible.)

Adjust as follows:

1. Turn on the power supplies of all equipment in the system.
2. Switch on the Color Bar switches of the cameras.
3. Set the switches and levers of the KM-2000 control panel as follows:
 - 1) Slide the MIX/SE lever all the way to the A position.
 - 2) Slide the MIX lever all the way to the MIX/SE position.
 - 3) Press the EFF switch on the PROGRAM selector.

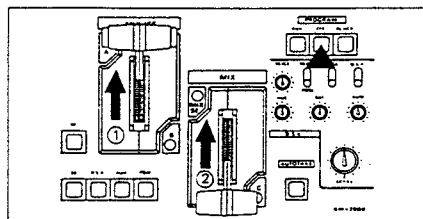


Fig. 1-14

4. Switch the PREVIEW bus-line switches to confirm that each camera's color bar signal is being output on the preview monitor.

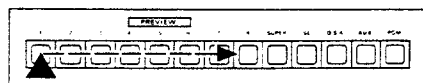


Fig. 1-15

5. Adjustment of horizontal phase and SC phase

- 1) Press INPUT A switch "1".
- 2) Alternately switch between PREVIEW switches "1" and "PGM".

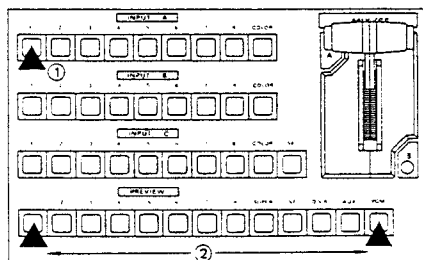


Fig. 1-16

- 3) Adjust horizontal (H) phase with the camera's remote control unit so that there is no difference in the horizontal phase of the image on the preview monitor (the image should not move to the left and right).

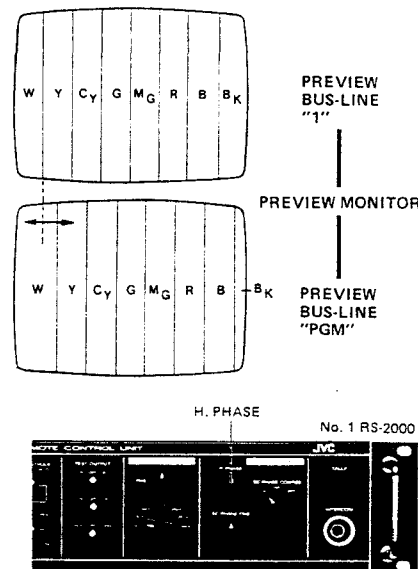


Fig. 1-17

- 4) When the switching ② above is being performed, adjust the SC phase controls on the camera's remote control so that the color bars on the monitor are consistent.



Fig. 1-18

Note: If phase cannot be adjusted with a remote control, use the camera's controls.

6. Perform these adjustments for all color cameras in the system.
7. Shoot the same object with all cameras; switching sequentially from PREVIEW bus-line switch "1", fine-adjust the black level (pedestal level), white level (video level), chroma level, hue, etc.

1.9 OPERATION

1.9.1 Primary functions

After completing connection, set switches, levers, etc. as shown.

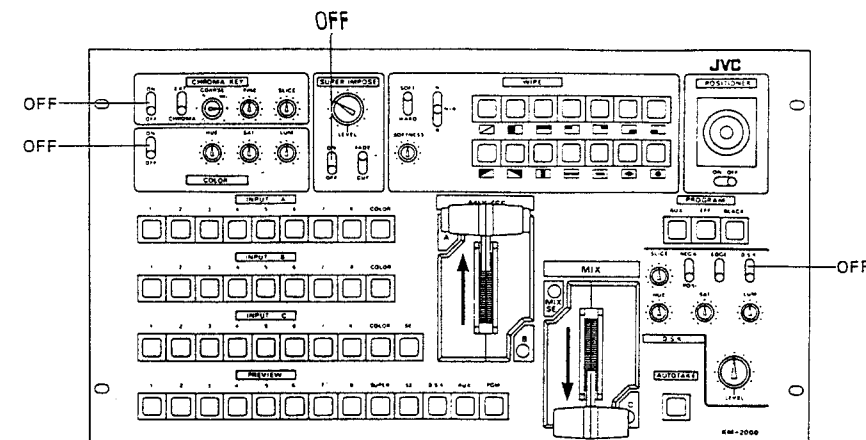


Fig. 1-19

When the power is turned on, press the "1" switches of the INPUT A, INPUT B, INPUT C and PREVIEW bus-lines; the "1" lamp of each line will light. The wipe mode is released (set to MIX/KEY) and the program mode is set to EFF (for transmission of the program output).

1. Picture selection

The following two methods can be used to output the PGM output by switching between cameras:

1) Switching

Slide the MIX lever all the way to C; now when the required INPUT C bus-line button is pressed, the required signal is output as the P.G.M output.

2) Autotake

While outputting the PGM output from the C bus-line, select the required picture by pressing one of the PREVIEW buttons. If the autotake button is pressed after checking the picture on the preview monitor, it will be output to the PGM output. (Pictures cannot be output from SUPER, DSK, AUX and PGM switches.)

2. MIX operations

This allows the mixing of the INPUT A and INPUT B bus-line pictures by the following procedure.

- 1) Set the PROGRAM selector to EFF.
- 2) Set the WIPE mode selector to MIX/KEY.
- 3) Slide the MIX/SE lever to A.
- 4) Slide the MIX lever to MIX/SE.
- 5) Press the necessary INPUT A and INPUT B bus-lines buttons to obtain the required picture.
- 6) When the MIX/SE lever is gradually slid towards B, the INPUT B picture gradually mixes over the INPUT A picture until it dissolves into the B picture.
- 7) Select INPUT A when cameras are not connected, but black burst signals are input.
- 8) If the MIX/SE lever is now slid towards A, INPUT B gradually fades out.
- 9) If the required signal is selected with INPUT B bus-line buttons, and the MIX/SE lever is gradually slid to B, the B input picture is gradually faded in.

Note: Mixing, dissolves, fade-in and fade-out effects between the MIX/SE output and C bus line are possible using the MIX lever.

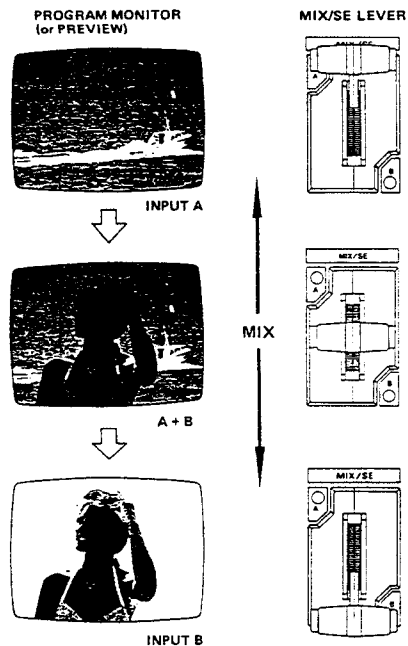


Fig. 1-20

3. WIPE operation

Changing between the INPUT A bus-line and INPUT B bus-line pictures is possible by wiping them vertically and horizontally.

- 1) Set the PROGRAM selector to EFF.
- 2) Slide the MIX lever to MIX/SE.
- 3) Slide the MIX/SE lever to A.
- 4) Select the required INPUT A bus-line picture.
- 5) Specify the required wipe pattern.

At this time, the wiper pattern used is

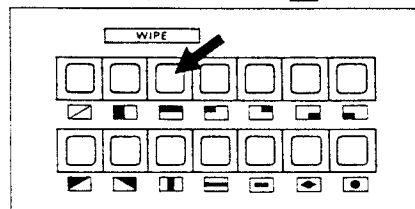


Fig. 1-21

- 6) Select the picture you want to change to with INPUT B bus-line Button.
- 7) By sliding MIX/SE lever gradually to B, INPUT A is wiped and finally replaced by INPUT B.

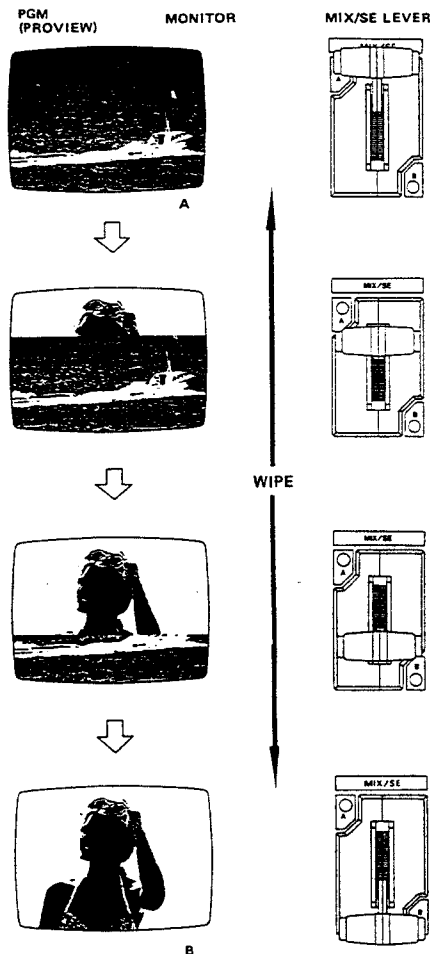


Fig. 1-22

Note: Wiping is possible using the MIX/SE lever but not the MIX lever.

4. SUPERIMPOSE operation

This operation superimposes a white character or graphics over the MIX output (combination of A, B and C inputs).

- 1) The character/graphic signal from a B/W camera is to be fed into the SUPER input terminal on the rear of the MAIN unit.
- 2) Turn the superimpose switch on.
- 3) Adjust the LEVEL control so that the character, etc. to be superimposed is inserted clearly. (Check on the preview monitor.)
- 4) If the FADE/CUT switch is kept in the FADE position, the character, etc. will be inserted slowly when the superimpose ON/OFF switch is turned ON. (Auto fade-in)

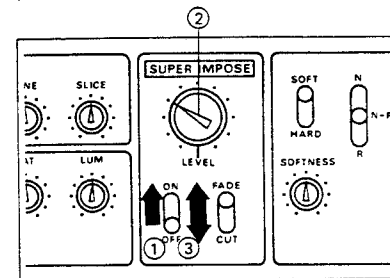


Fig. 1-23

- Note: 1) Titles to be superimposed should consist of white characters on a black background. White characters should be solid white.
- 2) Do not change the position of the FADE/CUT switch while the superimpose switch is set to ON.
 - 3) When wiping the superimposed video, the above methods do not apply. Input the signal to be superimposed to the EXT-KEY input and BACKGROUND COLOR signal as an inserted KEY signal, then wipe it. The title to be superimposed should be in WHITE characters on a black background.

5. D.S.K. (downstream keyer) operations

It is possible to insert a character or graphics from a B/W camera or character generator into the MIX output and to color the inserted character, etc.

- 1) Connect the B/W camera or character generator, etc. to the D.S.K input of the MAIN unit.

- 2) Set the NEGA/POSI switch on the control unit.

- For white characters on a black background — set to POSI
 - For black characters on a white background — set to NEGA
- 3) Adjust the SLICE and LEVEL control so that a clear picture is observed on the DSK PREVIEW monitor.
 - 4) To color the character, etc.
 - Select the color with the HUE control.
 - Adjust the color saturation with the SAT control.
 - Adjust the luminance with the LUM control.
 - 5) When there is only a slight difference in luminance between the MIX output (combination between A, B and C inputs) and the D.S.K signal, turn on the EDGE switch for easy visibility.

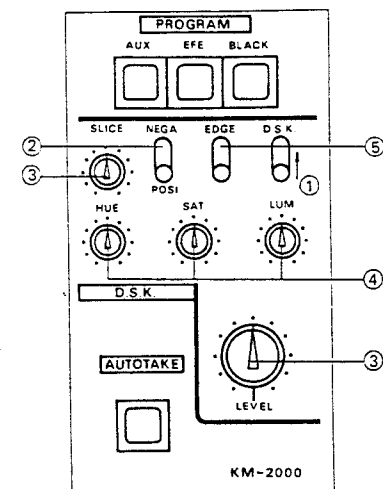


Fig. 1-24

- 6) To effect the fade in, turn the LEVEL control fully counterclockwise, then, after turning the D.S.K switch on, turn it gradually clockwise.

Note:

- (1) The signal from the Opaque camera (B/W) used for superimposing or D.S.K input should be Gen-Locked to that in the KM-2000 by using SYNC PULSE output. The sync signal fed to the B/W camera should be from the HD, VD or SYNC terminals on the rear panel of the MAIN unit depending on the camera. The length of the camera cable should be 5 m or less.
- (2) When color the inserted characters or graphics, interference fringe by Sub-Carrier appears inserted boundary part on the monitor screen. However this phenomenon is not fault.

1.9.2 SECONDARY FUNCTIONS

1. WIPE MODES

1) SOFT/HARD function

Switching the **SOFT/HARD** switch provides the following wipe effects.

1. **SOFT**: The boundary of the wipe is soft. The degree of softness can be varied with the **SOFTNESS** control.

2. **HARD**: The boundary of the wipe is sharp.

2) NORMAL/REVERSE function

By sliding the **MIX/SE** lever, the amount of wipe can be varied.

If the **N/R** switch is set to **N**, the pattern is always wiped in the same direction, whether the lever is moved up or down.

If the **N/R** switch is set to **R**, the wipe is always in the same direction, opposite to that with the switch set to **N**.

When the switch set to the **N-R** position (Normal-Reverse) wipes are in alternate directions.


Notes: 1. Slide the **MIX/SE** lever all the way to the **A** or **B** position. If it is moved to the opposite end during operation, all of these features operate as if the **N-R** (Normal-Reverse) position were selected.

2. The wipe pattern should be selected with the **MIX/SE** lever in the **A** or **B** position.

Cautions on WIPE operations

1. When the **POSITIONER** switch is **ON**, the Normal/Reverse function does not operate.

2. When turning on the **POSITIONER** switch, do so with the **MIX/SE** lever slid all the way to the **A** or **B** position.

When the **POSITIONER** switch is turned **ON** with the **MIX/SE** lever midway, the edge of the screen in which the wiping pattern is inserted appears () depending on the position of the **POSITIONER**.

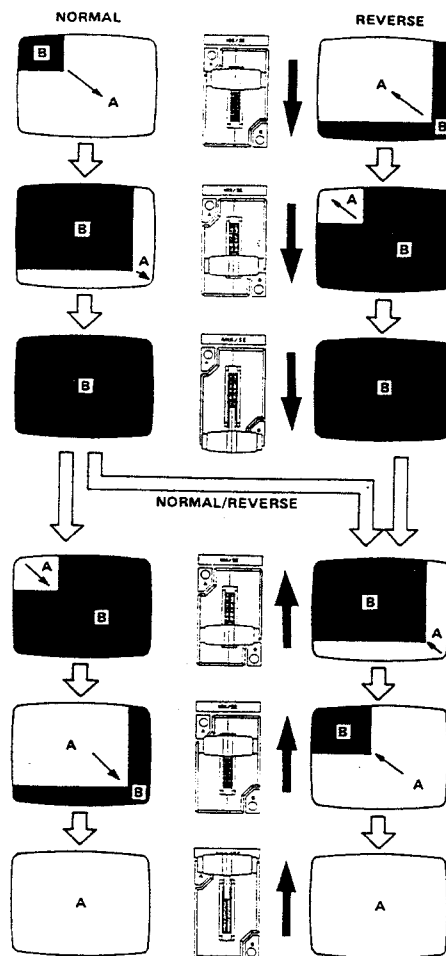





Fig. 1-25

(The wipe pattern used is  .)

3) Wipe Positioning

Switch on the **POSITIONER** switch. Now, when the positioner joystick is operated, the center of the wipe pattern (  ) is moved.

Notes: 1) Each of these wipe patterns has a different effect. Use them only after checking on the preview monitor.

2) When the **POSITIONER** switch is off, the wipe is at the center of the screen regardless of joystick position.

3) When increasing the amount of wipe, at a certain point, the edge of wipe pattern will be clipped. And so, wipe positioner should be used before this effect.

4) Wipe pattern modulation

If an audio signal (600 Ω /0 dB) is input to the **EXT. MOD** terminal on the rear of the **MAIN** unit while wiping the **A** and **B** inputs, the wipe pattern is modulated horizontally.

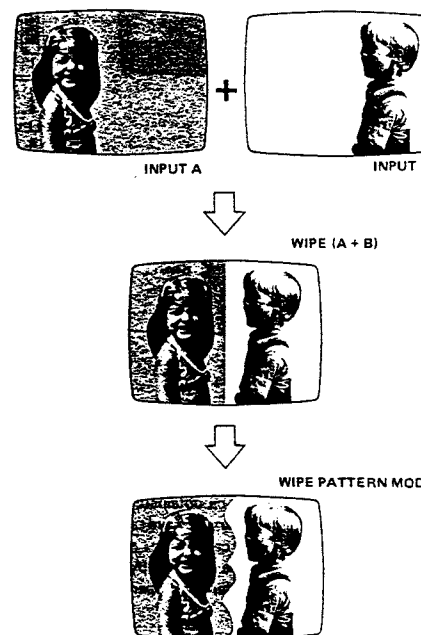


Fig. 1-26

(The wipe pattern used is  .)

Notes: 1) The wipe pattern can only be modulated in the horizontal direction. Even at high modulation frequencies, the vertical wipe pattern is not affected.

2) Wipe modulation amplitude is varied by an input audio signal level.

5) Color background

This to generate colors which fill the screen using the internal color signal generator.

1. Turn on the **COLOR** switch, then select one of the "COLOR" buttons on input **A**, **B** or **C** bus-line; monitor using the **PGM** output.

2. Select the color using the following controls.

HUE Select the desired color

SAT Adjust color saturation

LUM Adjust luminance

3. The signal is set to each **COLOR** position of **A**, **B** and **C** bus-lines.

Note: Turning down the **LUM** control too much when the chroma component is high may cause problems with the other components in the system. When generating dark colors, be careful to observe the waveforms with a monitor.

Be careful that the chroma signal does not drop below the lower edge of the burst signal.

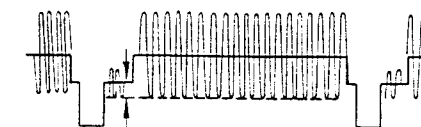


Fig. 1-27

2. PROGRAM SELECT

This selects the final output from the **KM-2000**.

EFF (line out): Signals including special effects generated by the **KM-2000** are output.

BLACK (black signal): A black signal with 7.5% set-up is output.

AUX (auxiliary): This is used to output the input signal from a **VTR**, etc.

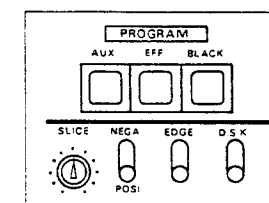


Fig. 1-28

Note: When switched from **BLACK** to **EFF**, the picture fades in from black; when switched from **EFF** to **BLACK**, the picture fades out.

3. KEYING (CHROMA KEY/EXT KEY)

This allows keying of pictures from the INPUT A and INPUT B bus-lines with graphics input via the EXT-KEY terminal. And because of the built-in chroma key signal generator, a chroma key effect can be obtained by feeding the R, G, B signal to the CHROMA KEY INPUTS.

Use the CHROMA KEY input as follows:

Preparations:

- Set the WIPE mode selector to MIX/KEY.
 - Input the chroma key signal from the color camera (key camera) to the required VIDEO INPUT 1-8. Select the input picture with INPUT A and INPUT C bus-lines switches. (Check on the monitor.)
 - Key with INPUT B bus-line to select the picture you want to insert.
 - Slide down the MIX lever to the C position.
- 1) Set the CHROMA KEY ON/OFF switch to "ON", the set the CHROMA/EXT switch to CHROMA.

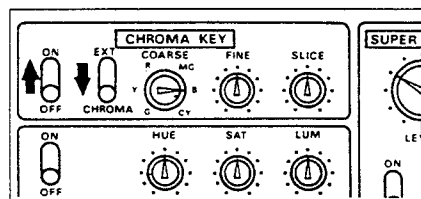


Fig. 1-29

- 2) Press the "SE" button of PREVIEW bus-line then slide the MIX/SE lever to A.

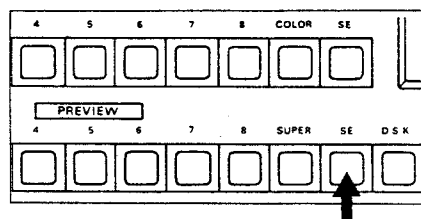


Fig. 1-30

- 3) Adjust the color of the part of the key camera picture you are going to eliminate by chroma keying with the COARSE control.
- 4) Watching the preview monitor, adjust the SLICE and FINE controls so that the keying effect is satisfactory.
- 5) Slide the MIX lever slowly to MIX/SE or press the AUTOTAKE switch.
- 6) When using the MIX lever, only the chroma keyed portion of the key camera picture dissolves into INPUT B bus-line picture. When using the AUTOTAKE switch, the former cuts into the latter.

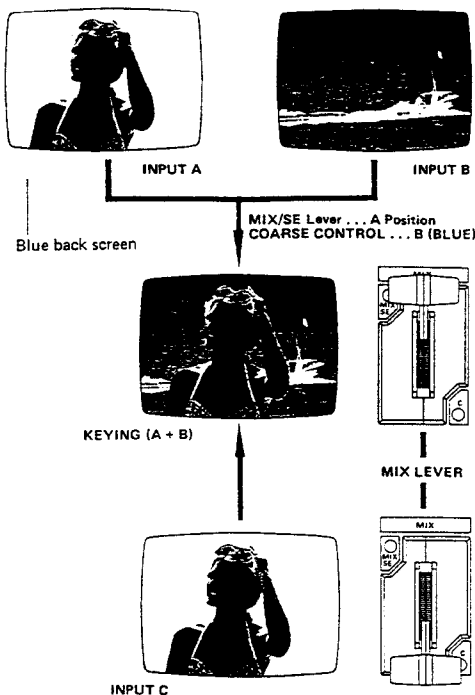


Fig. 1-31

Note: Instead of operating the MIX/KEY button, if the KM-2000 is set to the WIPE MODE and the MIX/SE lever is used, a variety of effects using the KEY signal can be obtained. For example, if there is an unnecessary picture at the corner of the screen which cannot be removed by chroma keying it can be removed by selecting the appropriate wipe pattern and operation of the MIX/SE lever.

4. EXTERNAL KEYING

Set the CHROMA/EXT switch to "EXT", then adjust the SLICE control so that clear keying is performed using the graphics input to EXT-KEY.

The part of the picture with the key signal (positive polarity) will be INPUT B picture and the part without the key signal will be INPUT A picture.

Note: When the POSITIONER is used, the edge of the keyed picture is clipped depending on the position of the POSITIONER.

1.10 TALLY AND INTERCOM CONNECTIONS

1. TALLY CONNECTION

In a system with a number of cameras, it is necessary for the camera operators and performers to know which camera is being used at any time; this is done using the tally signal.

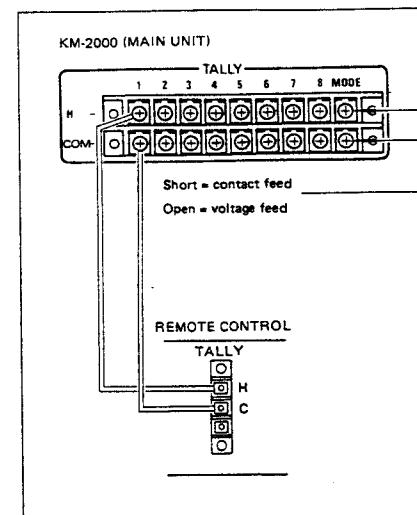


Fig. 1-32

- Contact and voltage feed can be selected by shorting or opening H and GND of the right end terminal (MODE) of the TALLY output terminal strip. Contact feed: 60 V AC/DC, 100 mA max. Voltage feed: 5 V DC, 10 mA max. Be careful not to exceed these values.
- Match the TALLY output signal with the mode required by the remote control unit.

CAUTION

The KM-2000 video systems, where the RS-2000 and RS-1900 are combined, must provide "VOLTAGE" tally control signals to them.

2. INTERCOM CONNECTION

When using a number of cameras together with the KM-2000, it is necessary that the operators of the various equipment should be able to communicate with one another. The INTERCOM facility makes this possible.

- Connect the INTERCOM terminal of the MAIN unit with the other equipment (remote control) as shown.

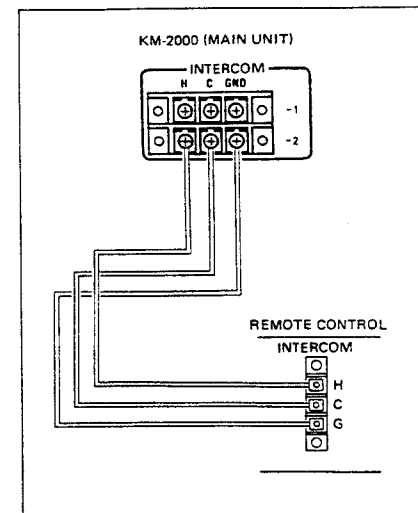


Fig. 1-33

- Intercommunication is possible by plugging a headset into the INTERCOM jack on the front of the MAIN unit. Headsets used should have carbon microphones (10 - 30 ohms) and magnetic earphones (200 - 300 ohms).
- There are three INTERCOM jacks and level controls which can be adjusted independently.

1.11 BLOCK DIAGRAM (MAIN UNIT)

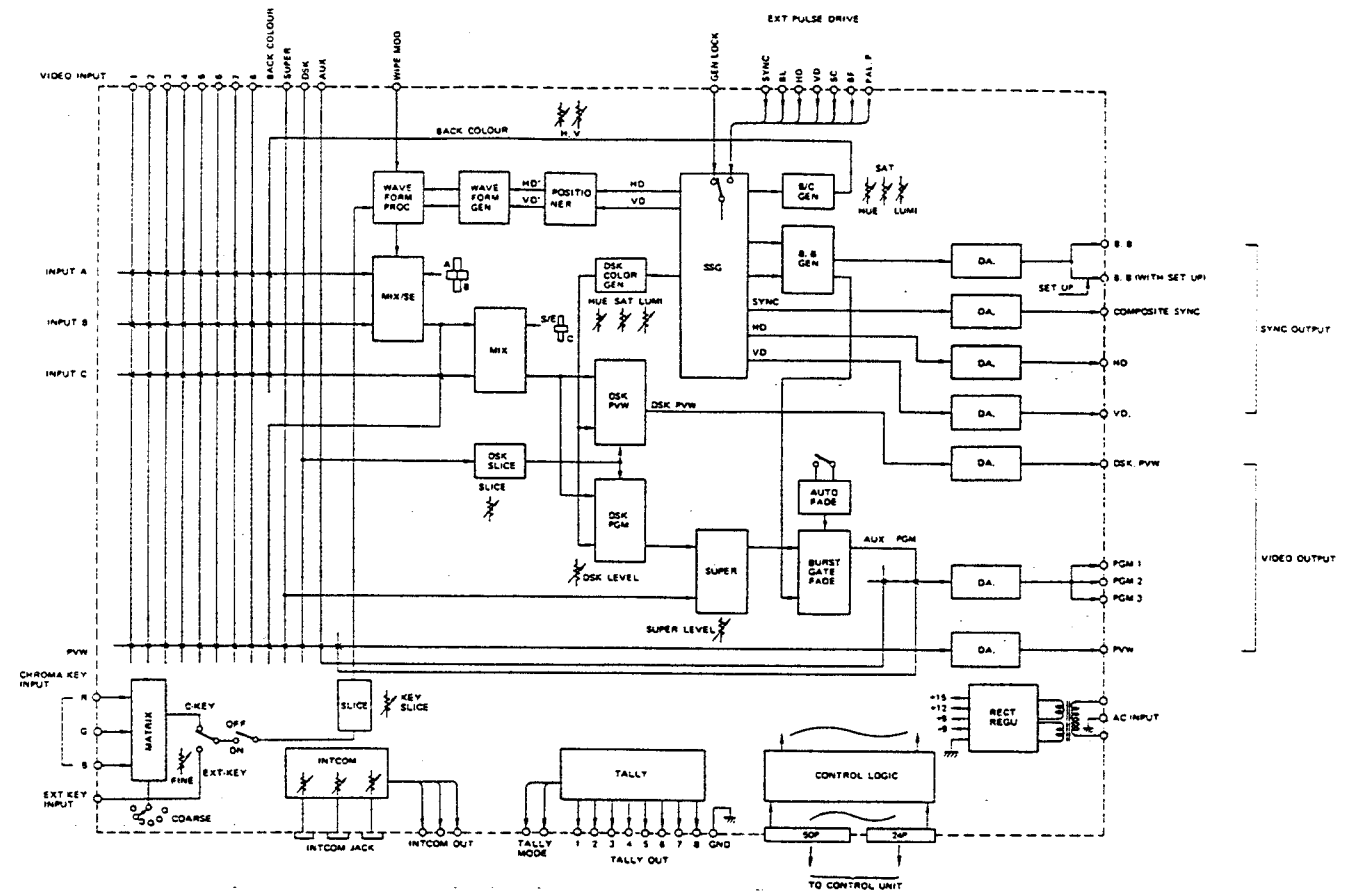


Fig. 1-34

SECTION 2 DISASSEMBLY

2.1 BEFORE DISASSEMBLING

2.1.1 Replacement of main fuses

Remove the top panel referring to Sec. 2.2.3 Removal of Top Cover.

Note: Remove AC mains plug and check the cause of fuse blown before fuse replacement.

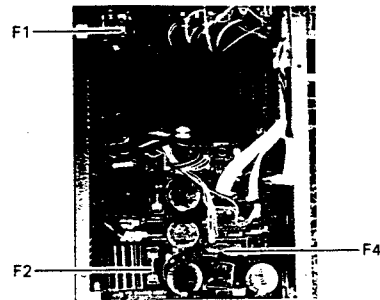


Fig. 2-1

| | NTSC version | | PAL version | |
|----|--------------|---------------------------|----------------|----------------------------|
| | Line voltage | Fuse | Line voltage | Fuse |
| F1 | 120 V AC | QMF51U1-1R6 (1.6 A/125 V) | 220 V/240 V AC | QMF51A2-R80 (T0.8 A/250 V) |
| F2 | +15 V DC | QMF51U1-1R6 (1.6 A/125 V) | +15 V DC | QMF51A2-1R6 (T1.6 A/250 V) |
| F4 | +5 V DC | QMF51U1-1R6 (1.6 A/125 V) | +5 V DC | QMF51A2-1R6 (T1.6 A/250 V) |

Note: Replace only with same type and rated fuses for continued protection against risk of fire.

Table 2-1

2.1.2 Removal of knobs

1. Small knob

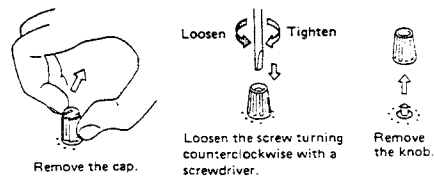


Fig. 2-2 (a)

2. Large knob

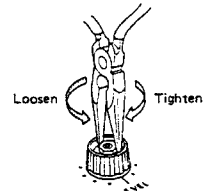
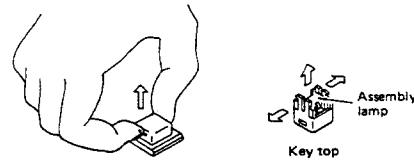


Fig. 2-2 (b)

2.1.3 Replacement of assembly lamps



Pull off the key top with a finger tip or a screwdriver by inserting its tip into the key slot.
Remove the assembly lamp out of the key top then insert a new lamp as before.

Fig. 2-3

2.1.4 Card fit cable connection

Note for conductors side on both of card cable and connector to mate.

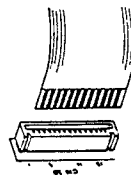


Fig. 2-4

2.2 DISASSEMBLY OF THE MAIN BOARD

2.2.1 Removal of the front panel

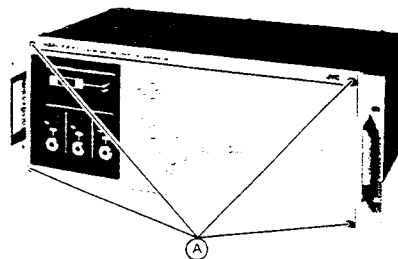
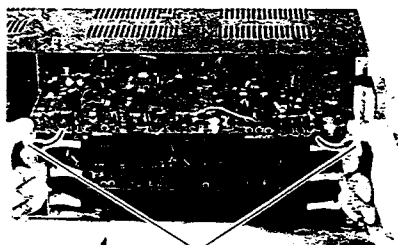


Fig. 2-5

Loosen four screws (A) of the front panel and remove the panel.

2.2.2 Removal of VIDEO, CP, WFP, BC, SG boards



Hook
Fig. 2-6

Release the hooks (turn to front) on the both sides of the board simultaneously and pull out the board.

2.2.3 Removal of the top cover

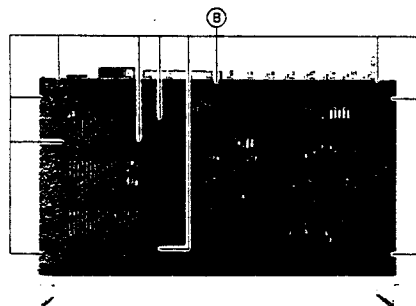


Fig. 2-7

Remove the eleven screws (B).

2.2.4 Removal of the MB (Mother Board)

1. Remove the connector on the Mother board.

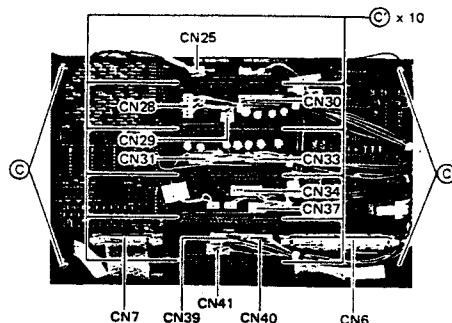


Fig. 2-8

2. Remove fourteen screws (C) and pull the Mother Board to front.

2.2.5 Removal of the rear panel

1. Remove the three screws (D) on the bottom plate.

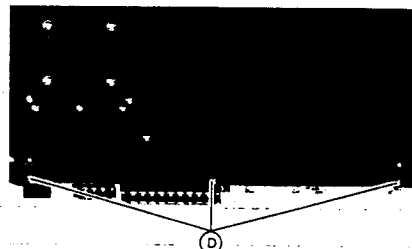


Fig. 2-9

2. Remove the six screws (E) on the rear panel.

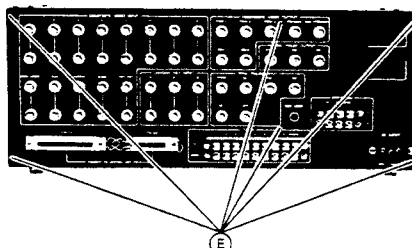


Fig. 2-10

3. Pull the rear panel to backward and remove CN42 and CN43.

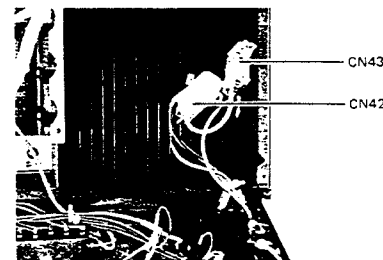


Fig. 2-11

2.2.6 Removal of the Fuse board

Remove the two screws (F).

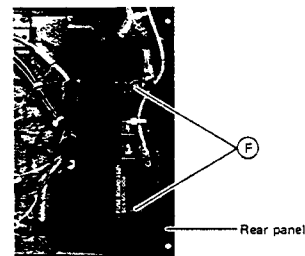


Fig. 2-12

2.2.7 Removal of TL (Tally) board

1. Remove CN1, 9, 10 on the TL board.

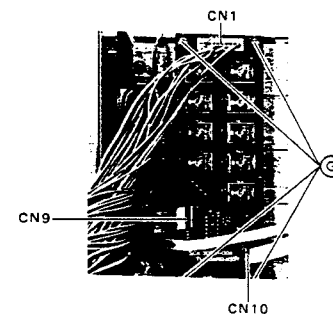


Fig. 2-13

2. Remove the four screws (G) and remove the TL board.

2.2.8 Removal of the handle

1. Remove the screws (H) and pull the handle with its fixing bracket together in the direction of the arrow mark.

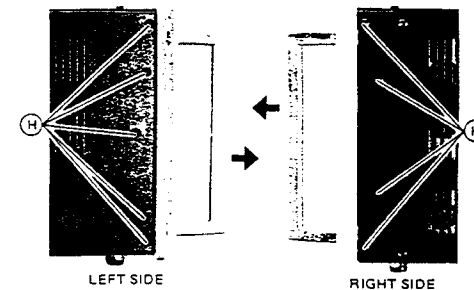


Fig. 2-14

2. Remove the two screws (I).

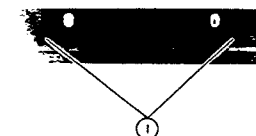


Fig. 2-15

2.2.9 Disassembly of the sub panel and removal of IT (INTER-COM) board

1. Remove the two screws (J).

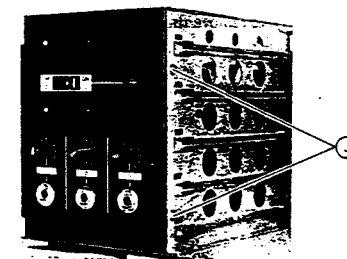


Fig. 2-16

2. Remove CN44 on the PS board and CN18 and 19 on the IT board.

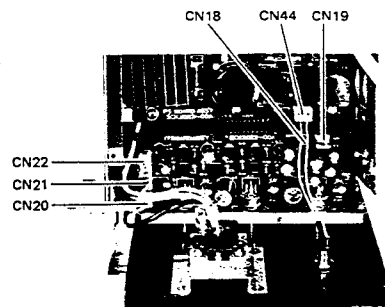


Fig. 2-17

3. Remove the knobs of INTERCOM level control.

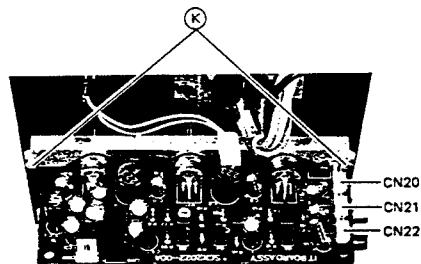


Fig. 2-18

4. Remove CN20, 21 and 22 on the IT board and the two screws (K) to remove the IT board.

2.2.10 Removal of PS (POWER SUPPLY) board

1. Remove the five screws (L1) to remove the side panel.

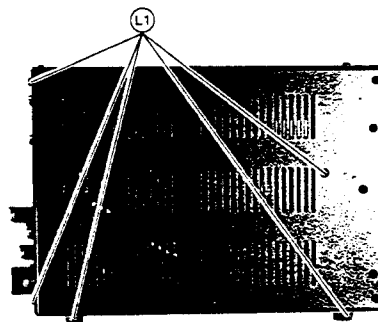


Fig. 2-19

2. Remove CN13, 14, 15, 16, 17 and 18 on the PS board.

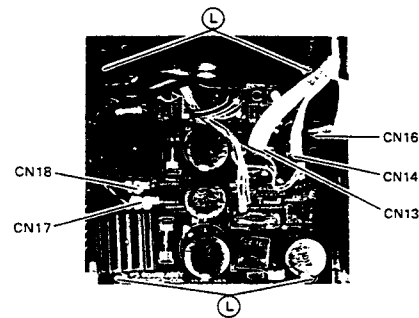


Fig. 2-20

3. Remove the four screws (L).

2.2.11 Removal of Q1, Q2, IC2 and Q3

1. Remove the five screws (M) on the bottom plate.

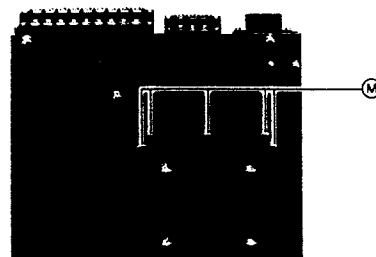
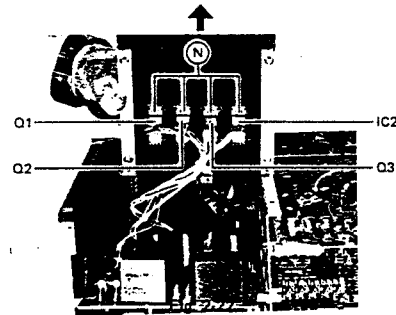


Fig. 2-21

2. Remove the heat sink plate upwards.



3. Remove the screw (N) corresponding to a transistor or IC to be replaced, then remove the transistor or IC.

2.2.12 Removal of the power transformer PT01

1. Remove the four screws (O) on the bottom plate.

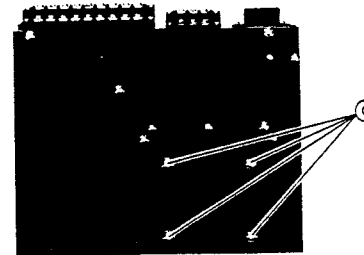


Fig. 2-23

2. Remove the power transformer upwards.

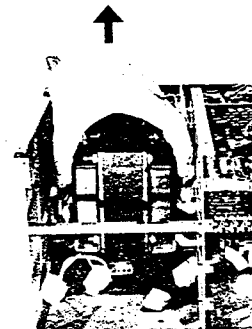


Fig. 2-24

2. Remove the five screws (B).

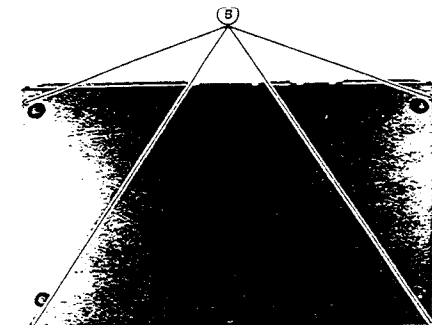


Fig. 2-25

3. Open the bottom cover of the control board as shown in Fig. 2-27.



Fig. 2-27

When adjusting and checking up control unit, all are proceeded on this condition.

REMOVAL OF CONTROL CONNECTORS

Control cable connectors (CN01, CN02) can be provided on the bottom of unit as well.

1. Remove the coverplate on the bottom of unit.
2. Remove the flat cable of CN01 and CN02 on the LB board.
3. Remove the CN01 and CN02 connectors.
4. Mount the CN01 and CN02 on the bottom, and connect flat cables to LB board.

2.3 DISASSEMBLY OF THE CONTROL BOARD

2.3.1 Removal of the bottom cover

1. Loosen and remove the seven screws (A).

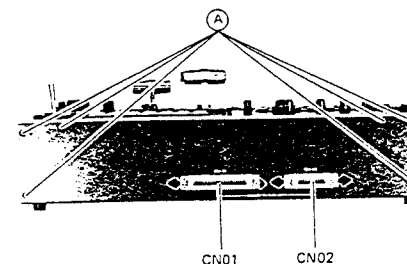


Fig. 2-25

- Remove CN21, 22, 23, 24, 16, 17, 18, 19 and 20, and CN01 and CN02.

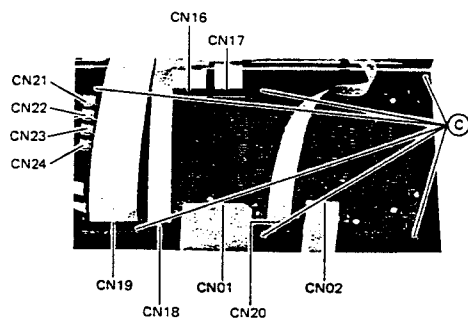


Fig. 2-28

- Remove the six screws (C) to take out the LB board.

2.3.2 Removal of SB (SWITCH BOARD) - 1

- Remove the eleven screws (D).

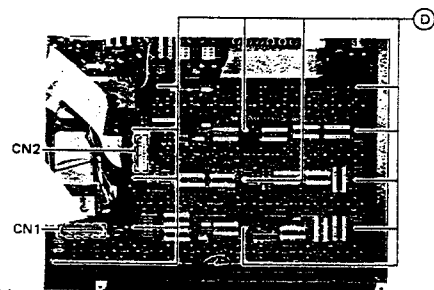


Fig. 2-29

- Remove CN1 and CN2.

2.3.3 Removal of SB (SWITCH BOARD) - 2 and POS (POSITIONER)

- Remove the knob of SOFTNESS control on the operation panel.

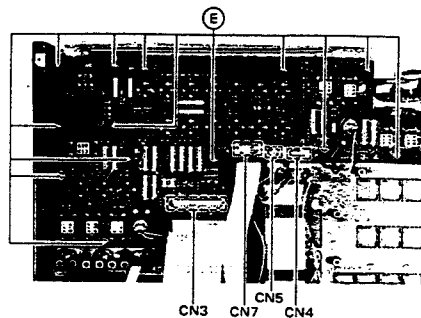


Fig. 2-30

- Remove CN4, 3, 7, 5 and 4.
- Remove thirteen screws (E).

2.3.4 Removal of CK (CHROMA KEY) board

- Remove the knobs of COARSE, FIN, SLICE and LEVEL on the operation panel.
- Remove CN8, 9, and 11.

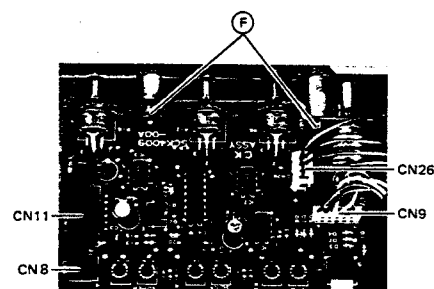


Fig. 2-31

- Remove the two screws (F) of the CK board.

2.3.5 Removal of SB (SWITCH BOARD) - 3

- Remove the three screws (G) of the board.

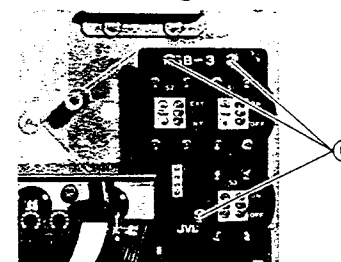


Fig. 2-32

2.3.6 Removal of AU (AUTO TAKE) board

- Remove the LEVEL control knob from the operation panel side.
- Remove the four screws (H) and CN11, then remove the AU board.

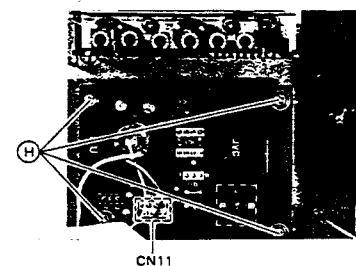


Fig. 2-33

2.3.7 Removal of DS (DOWNSTREAM KEYS) board

- Remove three knobs of the DSK P.W.B. from operation panel side.

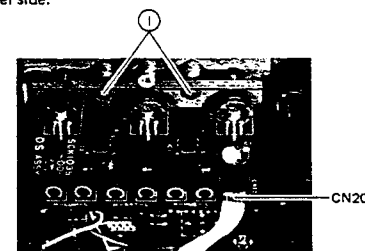


Fig. 2-34

- Remove the two screws (I) and CN20, then remove the DS board.

2.3.8 Removal of BCC (BACK COLOR CONTROL) board

- Remove the knobs of HUE, SAT. and LUM of the BCC P.W.B. from operation panel side.
- Remove the two screws (J).

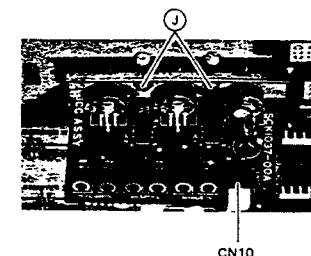


Fig. 2-35

- Remove CN10 and remove the BCC board.

2.3.9 Removal of FADER mechanism

- Remove the two nuts (A) on the bottom side.
- Pull out the mechanism upwards.

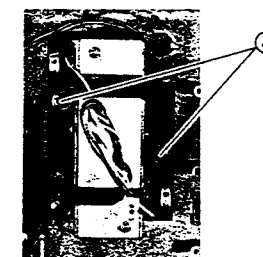


Fig. 2-36

2.3.10 Removal of FADER VR

- Remove the two screws (B) and pull the VR backward.

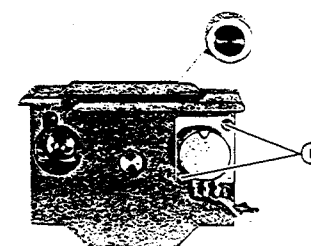


Fig. 2-37

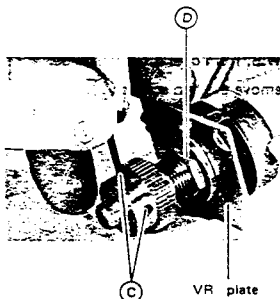


Fig. 2-38

2. Loosen the screw (C) with a hex-wrench and remove the gear. Then, loosen the nut (D) on the VR plate.

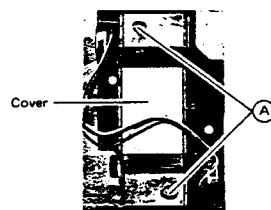


Fig. 2-39

2. Loosen the two screws with a hex-wrench.

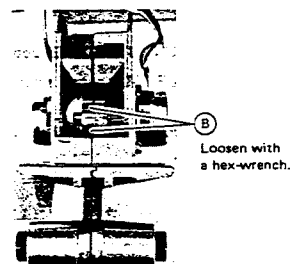


Fig. 2-40

3. Adjust the position using a flat blade screwdriver, and fix the VR with a hex-wrench after adjustment.

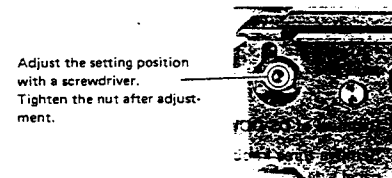
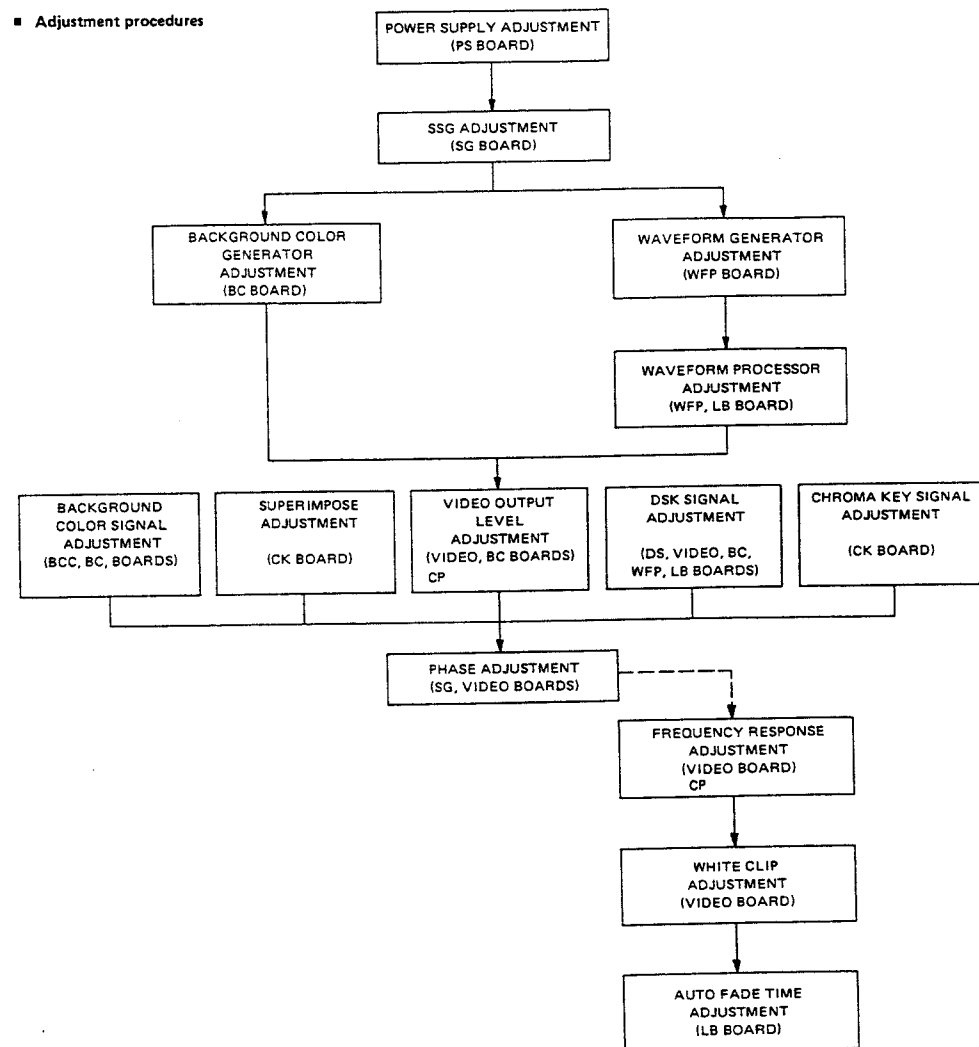


Fig. 2-41

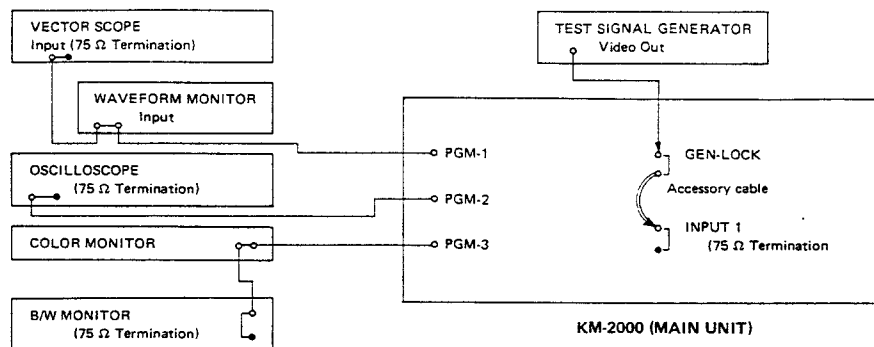
SECTION 2 ADJUSTMENT

■ Adjustment procedures



3.1 TEST EQUIPMENTS AND CONNECTION FOR ADJUSTMENT

- Digital Voltmeter or V.T.V.M.
- Dual Trace Oscilloscope (Tektronix 465B, etc.)
- Test Signal Generator (with Stair-step, Window, White, Cross-hatch generators)
- Frequency Counter
- Vectorscope (Tektronix 1420, etc.)
- Waveform Monitor (Tektronix 528, etc.)
- Color Monitor (Under-scanning is recommended.)
- Black and White Monitor (Under-scanning is recommended.)
- Extender Board (Part No. SCK1044)



1. POWER SUPPLY ADJUSTMENT

1-1 Regulator adjustment (+15 V, +9 V)

Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|--------------------|-----------------------------|-------------------|----------------------|
| — | TP-1 (PS BOARD) | R15 +15 V ADJ (PS BOARD) | +15 V \pm 0.1 V | Digital voltmeter |
| | TP-2 (PS BOARD) | R8 +8 V ADJ (PS BOARD) | +9 V \pm 0.1 V | |

Adjustment procedures

- (1) Connect a digital voltmeter \oplus to TP-1 of PS BOARD and \ominus to chassis. Adjust R15 (+15 V ADJ) on PS BOARD so that the reading is +15 V.
- (2) Connect a digital voltmeter to TP-2 of PS BOARD. Adjust R8 (+9 V ADJ) on PS BOARD so that the reading is +9 V.

2. SSG ADJUSTMENT (SYNC SIGNAL GENERATOR)

Before starting adjustments, move the SG board to the outside by using the PWB extender provided to adjust it.

2.1 SSG master oscillation frequency (f_{sc}) adjustment

Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|--------------------|------------------------------------|------------------------------|----------------------|
| — | TP-4 (SG BOARD) | NTSC C60 SC FREQ. (SG BOARD) | 3.579545 MHz \pm 5 Hz | Frequency counter |
| | TP-6 (SG BOARD) | PAL C67 SC FREQ. (SG BOARD) | 4.43361875 MHz \pm 5 Hz | |

Adjustment procedures

- | | |
|---|--|
| <p>NTSC</p> <ol style="list-style-type: none"> (1) Connect a frequency counter to TP-4 on the SG BOARD. (2) Adjust SC FREQ trimming capacitor (C60) so that the reading is 3.579545 MHz \pm 5 Hz. | <p>PAL</p> <ol style="list-style-type: none"> (1) Connect a frequency counter to TP-6 on the SG BOARD. (2) Adjust SC FREQ trimming capacitor (C67) so that the reading is 4.43361875 MHz \pm 5 Hz. |
|---|--|

2.2 SYNC level adjustment

Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-------------------------|-----------------------------------|--------------------|--|
| — | TP-1 (SG BOARD BASE) | R44 SYNC LEVEL (SG BOARD BASE) | 4 Vp-p \pm 0.2 V | Oscilloscope: H-rate, 20 μ s (75 Ω termination) |

Adjustment procedures

- (1) Connect an oscilloscope to TP-1 on SG BOARD BASE (75 Ω termination).
- (2) Adjust R44 (SYNC LEVEL) so that a voltage of 4 Vp-p \pm 0.2 V is obtained as shown in Fig. 2-1.

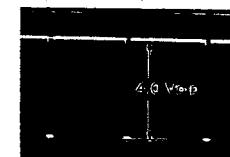


Fig. 2-1

2-3 H.D. pulse level adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-------------------------|---------------------------------|----------------------|--|
| — | TP-2 (SG BOARD BASE) | R53 HD LEVEL (SG BOARD BASE) | 4.0 Vp-p \pm 0.2 V | Oscilloscope: H-rate, 20 μ s (75 Ω termination) |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-2 on SG BOARD BASE (75 Ω termination).
- (2) Adjust R53 (HD LEVEL) so that a voltage of 4 Vp-p \pm 0.2 V is obtained as shown in Fig. 2-2.

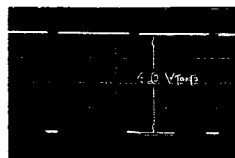


Fig. 2-2

2-4 V.D. pulse level adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-------------------------|---------------------------------|----------------------|--|
| — | TP-3 (SG BOARD BASE) | R62 VD LEVEL (SG BOARD BASE) | 4.0 Vp-p \pm 0.2 V | Oscilloscope: V-rate, 5 ms (75 Ω termination) |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-3 on SG BOARD BASE.
- (2) Adjust R62 (VD LEVEL) so that a voltage of 4 Vp-p \pm 0.2 V is obtained as shown in Fig. 2-3.

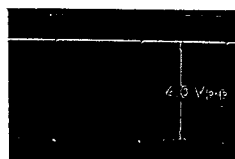


Fig. 2-3

2-5 H-blanking pulse width adjustment (NTSC only)

■ Adjustment point

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|-------------------------------|-------------------------------|---------------------------|-----|-------------------------------------|
| | | | NTSC | PAL | |
| — | CN 1 Pin ⑫ (SG BOARD BASE) | R102 H-BLANKING (SG BOARD) | 10.5 \pm 0.2 μ s | | Oscilloscope: H-rate, 10 μ s |

■ Adjustment procedures

- (1) Connect an oscilloscope to pin ⑫ of CN1 on SG BOARD BASE.
- (2) Adjust R102 (H-BLANKING) so that the pulse width is 10.5 \pm 0.2 μ sec as shown in Fig. 2-4.



Fig. 2-4

2-6 H. phase adjustment

■ Adjustment point

| Input signal | Test point | VR | | Signal level | Measuring instrument |
|--|--------------------|------|-----------------------------|--------------|-------------------------------------|
| Stair-step Signal (Test Signal Generator) | TP-1 (SG BOARD) | NTSC | R81 H. PHASE (SG BOARD) | — | Oscilloscope: H-rate, 10 μ s |
| | | PAL | R125 H. PHASE (SG BOARD) | — | |

■ Adjustment procedures

- (1) Supply a stair-step signal to input 1 connector through GEN-LOCK input.
- (2) Connect an oscilloscope A-ch to stair-step signal and B-ch to PGM-1 connector.
- (3) Adjust the above VR so that the input level and output level are the same.

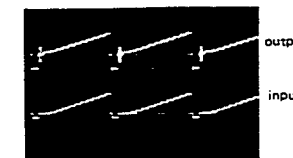


Fig. 2-5

2-7 EXT. SC level adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|--------------------------|-------------------------------------|--------------------|----------------------|
| SC signal | CN-1 Pin ⑤ (SG BOARD) | R29 EXT SC LEVEL (SG BOARD BASE) | 0.6 \pm 0.1 Vp-p | Oscilloscope |

■ Adjustment procedures

- (1) Connect an oscilloscope to pin ⑤ of CN1 on SG BOARD.
- (2) Provide an SC signal (2 Vp-p) from EXT. MASTER SSG to SC input.
- (3) Adjust R29 (EXT. SC LEVEL) so that the SC amplitude is 0.6 Vp-p \pm 0.1 V as shown in Fig. 2-6.

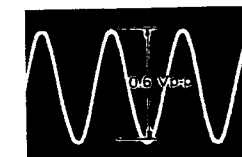


Fig. 2-6

3. BACKGROUND COLOR GENERATOR ADJUSTMENT

Before starting adjustments, move the BC board to the outside by using the PWB extender provided to adjust it.

3-1 Carrier balance adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------|---------------------------|--------------|----------------------------------|
| — | BB-2 (OUTPUT) | R20, R85 C-BAL (BC BOARD) | — | Oscilloscope: H-rate, 20 μ s |

■ Adjustment procedures

- (1) Connect an oscilloscope to BB-2 of MAIN unit via a 75-ohm load resistor (75 Ω termination).
- (2) Then simultaneously adjust R20 and R85 to minimize the carrier leak of black level as shown in Fig. 3-1.

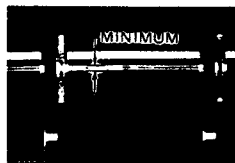


Fig. 3-1

3-2 BF, SYNC, SET-UP level adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|------------------|------------------------------|---------------|-------|--|
| | | | NTSC | PAL | |
| — | BB-2 (OUTPUT) | R11 BF LEVEL (BC BOARD) | 0.286 Vp-p | 0.3 V | Oscilloscope: H-rate, 20 μs (75 Ω termination) |
| | | R94 SYNC LEVEL (BC BOARD) | 0.286 Vp-p | 0.3 V | |
| | | R100 SET-UP (BC BOARD) | 53.5 mVp-p | | |

■ Adjustment procedure

- (1) Adjust R11 (BF LEVEL) for burst level. (Fig. 3-2)
- (2) Adjust R94 (SYNC LEVEL) for sync level. (Fig. 3-2)
- (3) Adjust R100 (SET-UP) for set-up level. (Fig. 3-2)

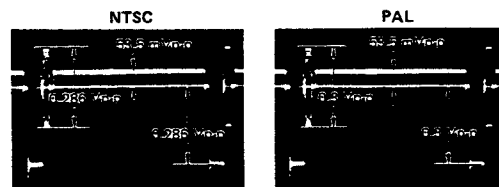


Fig. 3-2

3-3 BC SYNC level adjustment

■ Adjustment procedures

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|-----------------|------------------------|--------------|----------|----------------------------------|
| | | | NTSC | PAL | |
| — | TP-3 (BC BOARD) | R96 BC SYNC (BC BOARD) | 0.286 Vp-p | 0.3 Vp-p | Oscilloscope: H-rate, 20 μ s |

■ Adjustment procedure

- (1) Connect an oscilloscope to TP-3 on BC BOARD.
- (2) Adjust R96 (BC SYNC) for SYNC level as shown in Fig. 3-3.



Fig. 3-3

3-4 CP WIDTH adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-----------------|-------------------------|---------------------|----------------------------------|
| — | TP-1 (BC BOARD) | R46 CP WIDTH (BC BOARD) | $2.5 \pm 0.1 \mu$ s | Oscilloscope: H-rate, 10 μ s |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-1 on BC BOARD.
- (2) Adjust R46 (CP WIDTH) so that the width is $2.5 \pm 0.1 \mu$ s as shown in Fig. 3-4.

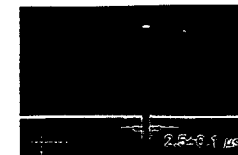


Fig. 3-4

3-5 N. BLANKING adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-----------------------|--------------------------|--------------------|----------------------------------|
| — | IC22 Pin ③ (BC BOARD) | R45 NBL WIDTH (BC BOARD) | $10 \pm 0.2 \mu$ s | Oscilloscope: H-rate, 10 μ s |

■ Adjustment procedure

- (1) Connect an oscilloscope to pin ③ of IC22 on BC BOARD.
- (2) Adjust R45 (NBL WIDTH) so that the N. blanking width is $10 \pm 0.2 \mu$ s as shown in Fig. 3-5.

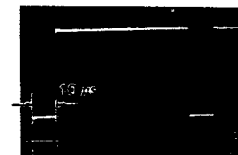


Fig. 3-5

3-6 BF PHASE adjustment (PAL Model only)

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------|------------------------------|--------------|----------------------|
| — | BB-2 (OUTPUT) | R14, R72 BF PHASE (BC BOARD) | — | Vectorscope |

■ Adjustment procedure

- (1) Connect a vectorscope to BB-2 of MAIN unit via a 75-ohm load resistor.
- (2) Adjust R14 (BF PHASE) so that the phase is specified position as shown in Fig. 3-6.
- (3) Adjust R72 (BF PHASE) for quadrature as shown in Fig. 3-6.

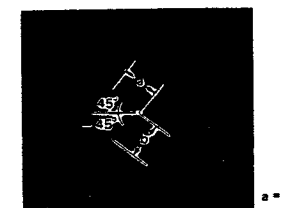


Fig. 3-6

4. WAVEFORM GENERATOR ADJUSTMENT

Before starting adjustments, move the WFP board to the outside by using the PWB extender provided to adjust it.

4-1 H. signal adjustment

4-1-1 H. phase adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------|----------------------------|--------------|-------------------------------------|
| — | TP-1 (WFP BOARD) | R3 H. PHASE (WFP BOARD) | 37 μ s | Oscilloscope: H-rate, 10 μ s |

■ Adjustment procedure

- (1) Observe the TP-1 on the WFP BOARD and HD output (Rear of MAIN UNIT) with a dual trace oscilloscope and adjust R3 (H. PHASE) so that the rise timing is 37 μ sec.

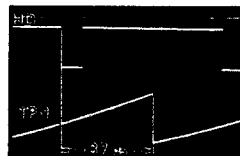


Fig. 4-1

4-1-2 POSITIONER H. SAWTOOTH amplitude adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------|-----------------------------|--------------|-------------------------------------|
| — | TP-1 (WFP BOARD) | R9 H-SAW-POS (WFP BOARD) | 3.0 Vp-p | Oscilloscope: H-rate, 20 μ s |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-1 on WFP BOARD.
- (2) Adjust R9 (H-SAW-POS) so that the amplitude is 3.0 Vp-p.

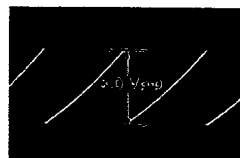


Fig. 4-2

4-1-3 H. SAWTOOTH adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------|--------------------------------|--------------|-------------------------------------|
| — | TP-3 (WFP BOARD) | R30 H-SAW-LEVEL (WFP BOARD) | 1.2 Vp-p | Oscilloscope: H-rate, 20 μ s |
| | | R27 H-SAW-LIN (WFP BOARD) | — | |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-3 on WFP BOARD.
- (2) Adjust R30 (H-SAW-LEVEL) so that the sawtooth amplitude is 1.2 Vp-p.
- (3) Adjust the linearity with R27 (H-SAW-LIN).

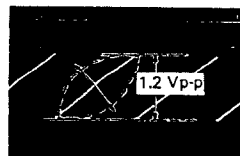


Fig. 4-3

4-1-4 H. PARABOLA adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------|---------------------------------|--------------|-------------------------------------|
| — | TP-4 (WFP BOARD) | R34 H-PARA-LEVEL (WFP BOARD) | 2.0 Vp-p | Oscilloscope: H-rate, 20 μ s |
| | | R31 H-PARA-LIN (WFP BOARD) | a = b | |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-4 on WFP BOARD.
- (2) Adjust R31 (H-PARA-LIN) so that the peak point is positioned at the center of the parabolic waveform.
- (3) Adjust R34 (H-PARA-LEVEL) so that the parabolic waveform peak level is 2.0 Vp-p.

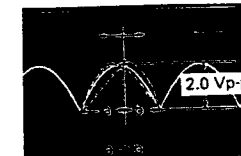


Fig. 4-4

4-1-5 H. TRIANGLE adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------|--------------------------------|--------------|-------------------------------------|
| — | TP-5 (WFP BOARD) | R37 H-TRI-PHASE (WFP BOARD) | a = b | Oscilloscope: H-rate, 20 μ s |
| | | R44 H-TRI-LEVEL (WFP BOARD) | 0.8 Vp-p | |
| | | R42 H-TRI-LIN (WFP BOARD) | — | |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-5 on WFP BOARD.
- (2) Adjust R37 (H-TRI-PHASE) so that a equals b as shown in Fig. 4-5.
- (3) Adjust R44 (H-TRI-LEVEL) so that the level is 0.8 Vp-p.
- (4) Adjust R42 (H-TRI-LIN) so that linear line is obtained.

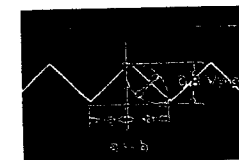




Fig. 4-5

4-1-6 H. INVERSE level adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------|--------------------------------|--------------|---|
| — | TP-6 (WFP BOARD) | R52 H-INV-LEVEL (WFP BOARD) | 1.2 Vp-p | Oscilloscope: H-rate, 20 μ s DC range |
| | | R56 H-INV-BIAS (WFP BOARD) | — | |

■ Adjustment procedures

- (1) In both wipe mode  and , adjust so that the same peak DC level is obtained.
- (2) Adjust R52 (H-INV-LEVEL) and R56 (H-INV-BIAS) for p-p and DC levels respectively.

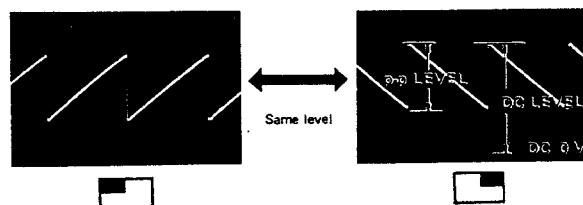




Fig. 4-6

4-1-7 H. DC setting

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-----------------------------------|------------------------------|--------------|---|
| — | C22 \ominus side (WFP BOARD) | R27 H-SAW-LIN (WFP BOARD) | — | Oscilloscope: H-rate, 20 μ s DC range |

■ Adjustment procedures

- (1) Connect an oscilloscope to C22 \ominus side on WFP BOARD.
- (2) In both wipe modes  and , slightly turn R27 (H-SAW-LIN) so that the same peak DC level is obtained.

Note: Slightly turn R27 so that the H sawtooth waveform linearity is not degraded.

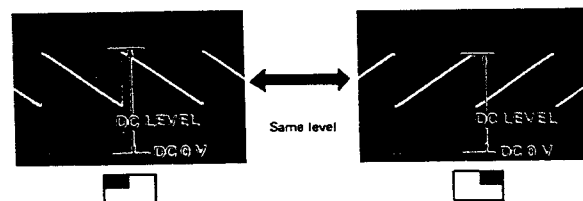


Fig. 4-7

4-2 V. signal adjustment

4-2-1 V. PHASE adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|---------------------|----------------------------|--------------|---------|-------------------------------|
| | | | NTSC | PAL | |
| — | TP-7 (WFP BOARD) | R68 V-PHASE (WFP BOARD) | 8.0 ms | 10.0 ms | Oscilloscope: V-rate, 2 ms |

■ Adjustment procedures

- (1) Connect an oscilloscope A-ch to VD output (Rear of MAIN UNIT) and B-ch to TP-7 on WFP BOARD.
- (2) Adjust R68 (V-PHASE) so that the front of the VD signal aligns with the rear of sawtooth waveform as shown in Fig. 4-8.

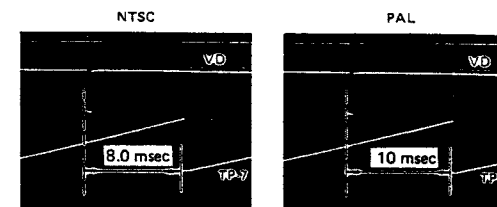


Fig. 4-8

4-2-2 POSITIONER V. SAWTOOTH amplitude adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------|------------------------------|--------------|-------------------------------|
| — | TP-7 (WFP BOARD) | R74 V-SAW-POS (WFP BOARD) | 3.0 Vp-p | Oscilloscope: V-rate, 5 ms |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-7 on WFP BOARD.
- (2) Adjust R74 (V-SAW-POS) so that the signal level is 3.0 Vp-p. (Fig. 4-9)

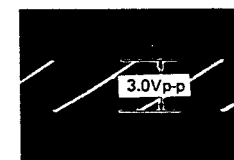


Fig. 4-9

4-2-3 V. SAWTOOTH adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------------|--------------------------------|--------------|-------------------------------|
| — | TP-10 (WFP BOARD) | R97 V-SAW-LEVEL (WFP BOARD) | 1.2 Vp-p | Oscilloscope: V-rate, 5 ms |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-10 on WFP BOARD.
- (2) Adjust R97 (V-SAW-LEVEL) so that the signal level is 1.2 Vp-p.

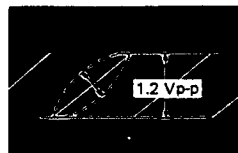



Fig. 4-10

4-2-4 V. PARABORA adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------------|----------------------------------|--------------|-------------------------------|
| — | C46 ⊖ side (WFP BOARD) | R99 V-PARA-LIN (WFP BOARD) | — | Oscilloscope: V-rate, 5 ms |
| | | R101 V-PARA-LEVEL (WFP BOARD) | 1.8 Vp-p | |

■ Adjustment procedures

- (1) Connect an oscilloscope to C46 ⊖ side on WFP BOARD.
- (2) Set the unit to wipe mode .
- (3) Adjust R101 (V-PARA-LEVEL) so that the parabolic waveform peak level is 1.8 Vp-p.
- (4) Adjust R99 (V-PARA-LIN) so that the peak point is located at the center.

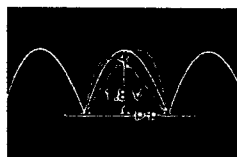


Fig. 4-11

4-2-5 V. TRIANGLE adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------------|---------------------------------|--------------|-------------------------------|
| — | TP-12 (WFP BOARD) | R104 V-TRI-PHASE (WFP BOARD) | a = b | Oscilloscope: V-rate, 5 ms |
| | | R111 V-TRI-LEVEL (WFP BOARD) | 1.0 Vp-p | |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-12 on WFP BOARD.
- (2) Adjust R104 (V-TRI-PHASE) so that a equals b as shown in Fig. 4-12.
- (3) Adjust R111 (V-TRI-LEVEL) so that the amplitude is 1.0 Vp-p.

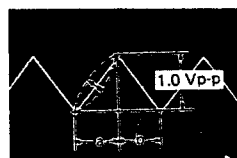




Fig. 4-12

4-2-6 V. INVERSIVE level adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------------|---------------------------------|--------------|-------------------------------|
| — | TP-13 (WFP BOARD) | R119 V-INV-LEVEL (WFP BOARD) | 1.2 Vp-p | Oscilloscope: V-rate, 5 ms |
| | | R123 V-INV-BIAS (WFP BOARD) | — | |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-13 on WFP BOARD.
- (2) In both wipe modes  and , adjust so that the same level is obtained.
Adjust R119 (V-INV-LEVEL) and R123 (V-INV-BIAS) for P-P and DC levels respectively.

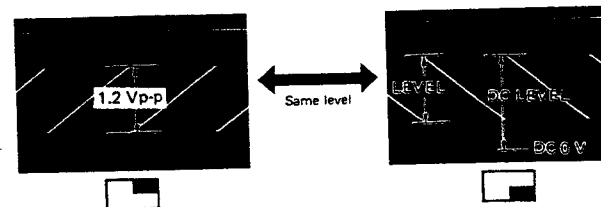





Fig. 4-13

4-2-7 LINEARITY ADJUSTMENT

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------------|--|--------------|---|
| — | C46 ⊖ side (WFP BOARD) | R94 V-SAW-LIN R110 V-TRI-LIN (WFP BOARD) | — | Oscilloscope: V-rate, 5 ms DC range |

■ Adjustment procedures

- (1) Connect an oscilloscope to C46 ⊖ side on WFP BOARD.
- (2) Select wipe mode  and , adjust R94 (V-SAW-LIN) to compensate THE WAVEFORM LINEARITY.
- (3) Select wipe mode , adjust R110 (V-TRI-LIN) to COMPENSATE THE WAVEFORM LINEARITY.

4-3 WIPE LEVEL adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------------|--------------------------------|--------------|---|
| — | TP-14 (WFP BOARD) | R184 WIPE LEVEL (WFP BOARD) | +5.4 V DC | Oscilloscope: H-rate, 10 μ s DC range |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-14 on WFP BOARD.
- (2) Set the unit to wipe mode ☐.
- (3) Adjust MIX/SE lever in the control unit so that the waveform is as specified in Fig. 4-15.
Adjust R184 (WIPE LEVEL) so that the maximum level is 5.4 V DC.

Note: Set the DC 0 V level with oscilloscope beforehand.

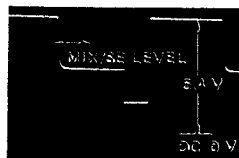


Fig. 4-15

4-4 DSK KEY LEVEL adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------------|-----------------------------------|--------------|--------------------------------------|
| — | TP-15 (WFP BOARD) | R250 DSK KEY LEVEL (WFP BOARD) | +7.5 V DC | Oscilloscope: H-rate, DC range |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-15 on WFP BOARD.
- (2) Set the SLICE knob in the DSK control section of the control panel to minimum.
- (3) Adjust R250 (DSK KEY LEVEL) so that the DC level is +7.5 V DC.

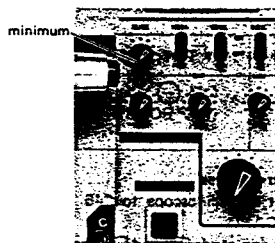


Fig. 4-16

5 WAVEFORM PROCESSOR ADJUSTMENT

Before starting adjustments, proceed as follows.

- (1) Move the WFP board to the outside by using the PWB EXTENDER provided to adjust it.
- (2) Supply the Test Signal Generator to INPUT 1 connector (rear of MAIN UNIT) through GEN-LOCK INPUT.
- (3) Connect an oscilloscope to PGM-1 (rear of MAIN UNIT) and color (B/W) monitor to PGM-2.
- (4) Set the unit in WIPE MODE ☒ and turn the positioner switch OFF.
- (5) Center the MIX/SE lever and set the MIX lever to MIX/SE (upper).
- (6) Set the INPUT A bus-line to "2".
- (7) Set the INPUT B bus-line to "COLOR".
- (8) Adjust COLOR LUM knob so that INPUT A and B are distinctive in the monitor screen.

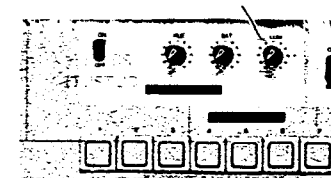


Fig. 5-1

5-1 POSITIONER centering adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|-------------------|---------------------------|--------------|------------|-------------------------------------|
| | | | NTSC | PAL | |
| — | PGM-1 (OUTPUT) | R12 H-POS1 (WFP BOARD) | 36 μ s | 36 μ s | Oscilloscope: H-rate, 10 μ s |
| | | R77 V-POS1 (WFP BOARD) | 9.8 ms | 10.8 ms | Oscilloscope: V-rate, 5 ms |

■ Adjustment procedures

- (1) Set the unit in wipe mode ☒ and turn the positioner switch OFF.
- (2) Adjust MIX/SE lever so that the waveform shown below is obtained.
- (3) Adjust R12 (H-rate) and R77 (V-rate) for the phase between front of the sync pulse and peak point.

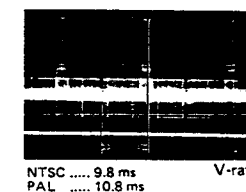
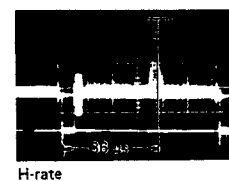


Fig. 5-2

5-2 POSITIONER variable range adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|-------------------|--|--------------------------|--------------------------|-------------------------------------|
| | | | NTSC | PAL | |
| - | PGM-1 (OUTPUT) | R185 H-POS-H R188 H-POS-L (LB BOARD) | 55 μ s 16 μ s | 55 μ s 16 μ s | Oscilloscope: H-rate, 20 μ s |
| | | R189 V-POS-L R192 V-POS-H (LB BOARD) | 14 ms 3.5 ms | 17.2 ms 4 ms | Oscilloscope: H-rate, 5 ms |

■ Adjustment procedures

- (1) Set the unit to wipe mode ☒ and turn the positioner switch to ON.
 - (2) Adjust the MIX/SE lever as shown in Fig. 5-4.
 - (3) In the right figure, when the positioner is shifted in the direction of arrow (1), adjust R188 (H-POS-L) so that the phase between front of the sync pulse and peak is 16 μ s.
- When the positioner is shifted in the directions of arrows (2), (3) and (4), adjust R189 (V-POS-L), R185 (H-POS-H) and R192 (V-POS-H) so that the phases adjust as shown below respectively.

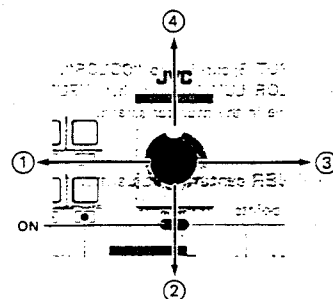


Fig. 5-3

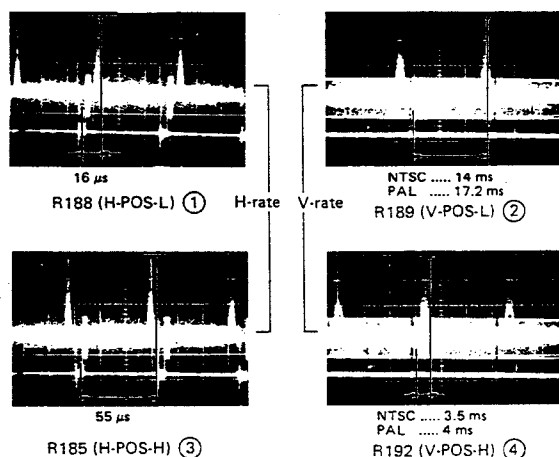


Fig. 5-4

5-3 Circle wipe level adjustment (THIS ADJUSTMENT HAVE TO ADJUST AFTER 5-7 DIA WIPE LEVEL ADJUSTMENT)

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------------|-------------------|----------------------------------|--------------|------------------------------|
| Cross Hatch Signal | PGM-2 (OUTPUT) | R31 H-PARA-LIN (WFP BOARD) | - | B/W (or Color) Monitor TV |
| | | R99 V-PARA-LIN (WFP BOARD) | - | |
| | | R101 V-PARA-LEVEL (WFP BOARD) | - | |

■ Adjustment procedures

- (1) Generate the cross hatch pattern from the test signal generator.
- (2) Set the INPUT A bus-line to "1".
- (3) Set the unit to wipe mode ☒ and turn the positioner switch ON.
- (4) Adjust R31, R99 and R101 so that the wipe pattern is circle referring the cross hatch pattern in the B/W monitor.

Note: Circle size -- Adjust MIX/SE lever.

Center position -- Adjust the POSITIONER.

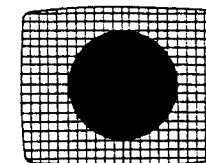


Fig. 5-5

5-4 H. WIPE adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-------------------|--------------------------------|--------------|---|
| - | PGM-2 (OUTPUT) | R194 H-FADER (L) (LB BOARD) | - | B/W (Color) Monitor TV (Under-scanning) |
| | | R168 H-FADER (H) (LB BOARD) | - | |

■ Adjustment procedures

- (1) Set the INPUT A bus-line to "2".
- (2) Set the INPUT B bus-line to "COLOR".
- (3) Set the unit to WIPE ☒ and turn the positioner switch OFF.
- (4) Set the N-R switch to "N-R".
- (5) Operate the MIX/SE lever as shown below and adjust R198 (H-FADER) and R168 (H-FADER) so that the wipe disappears from the B/W monitor at the end 10 mm points. (R198 is first)

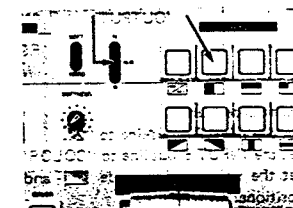


Fig. 5-6

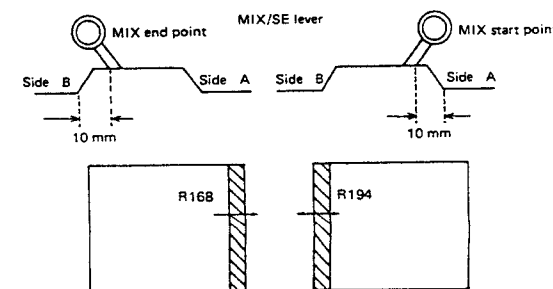






Fig. 5-7

5-5 CORNER WIPE adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-------------------|--------------------------------|--------------|---|
| — | PGM-2 (OUTPUT) | R196 V-FADER (L) (LB BOARD) | — | B/W (Color) Monitor TV (Under-scanning) |
| | | R178 V-FADER (H) (LB BOARD) | — | |

■ Adjustment procedures

- (1) Set the INPUT A bus-line to "2".
- (2) Set the INPUT B bus-line to "COLOR".
- (3) Set the unit to WIPE mode  and turn the positioner switch OFF.
- (4) Set the N-R switch to "N-R".
- (5) Adjust R178 (V-FADER-H) and R196 (V-FADER-L) so that the wipe starts H and V together and finishes together.
- (6) Set the unit to wipe modes ,  and  sequentially and confirm the situation. If they are not the same, slightly turn R196 and R178 to compensate the mis-alignment. (R196 is first)

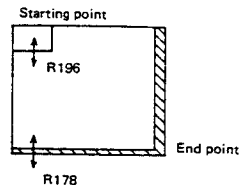



Fig. 5-8

5-6 DIAGONAL WIPE adjustment


■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-------------------|------------------------------|--------------|--|
| — | PGM-2 (OUTPUT) | R132 H-V-MIX (WFP BOARD) | — | B/W Monitor TV (or Color Monitor) (Under-scanning is recommended.) |
| | | R27 H-SAW-LIN (WFP BOARD) | — | |
| | | R94 V-SAW-LIN (WFP BOARD) | — | |

■ Adjustment procedures

- (1) Set the INPUT A bus-line to "2".
- (2) Set the INPUT B bus-line to "COLOR".
- (3) Set the unit to wipe mode  and turn the positioner switch OFF.
- (4) Operate the MIX/SE lever and adjust R132 (H-V-MIX) so that the wipe edge is positioned in the diagonal line of the B/W monitor. (If this adjustment is impossible with R132, slightly turn R97 [V-SAN-LEVEL] on WFP BOARD).
- (5) Compensate the slant wipe linearity with R27 (H-SAW-LIN) and R94 (V-SAW-LIN).

Note: Mainly adjust R94 and do not turn R27 excessively.

Proceed the same procedure in wipe mode .

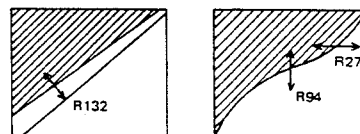



Fig. 5-9

5-7 DIA WIPE level adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-------------------|---------------------------------|--------------|--------------------------------------|
| — | PGM-2 (OUTPUT) | R42 H-TRI-LIN (WFP BOARD) | — | B/W Monitor TV (or Color Monitor) |
| | | R110 V-TRI-LIN (WFP BOARD) | — | |
| | | R111 V-TRI-LEVEL (WFP BOARD) | — | |

■ Adjustment procedures

- (1) Set the INPUT A bus-line to "2".
- (2) Set the INPUT B bus-line to "COLOR".
- (3) Set the unit to wipe mode  and turn the positioner switch OFF.
- (4) Move the MIX/SE lever so that DIA WIPE appears in the monitor.
- (5) Adjust R42 (H-TRI-LIN) and R110 (V-TRI-LIN) so that linear line is obtained.
- (6) Extend the dia wipe pattern and set the horizontal length to maximum. At that time, adjust R111 (V-TRI-LEVEL) so that the upper and bottom gap in the vertical direction is 5%. If the center of the dia wipe pattern is mis-aligned, adjust R104 (V-TRI-PHASE) and R37 (H-TRI-PHASE) on WFP BOARD.

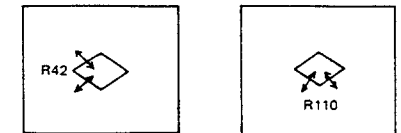


Fig. 5-10

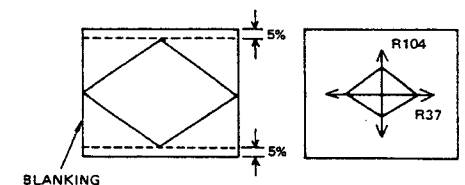


Fig. 5-11

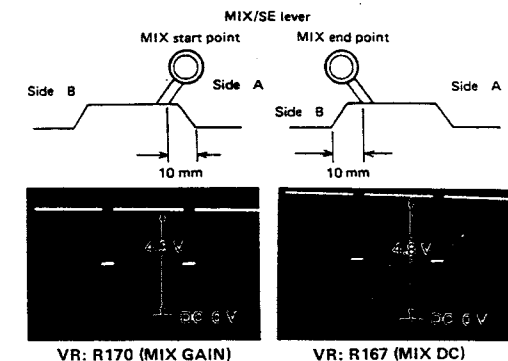
5-8 MIX/SE lever adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------------|------------------------------|--------------|---|
| — | TP-14 (WFP BOARD) | R170 MIX GAIN (WFP BOARD) | 4.3 V DC | Oscilloscope: H-rate, 20 μ s DC range |
| | | R167 MIX DC (WFP BOARD) | 4.8 V DC | |

■ Adjustment procedures

- (1) Connect an oscilloscope to TP-14 on WFP BOARD.
- (2) Set the unit to MIX/KEY mode.
- (3) Set the MIX/SE lever to MIX start point and adjust R170 so that the voltage at TP-14 is 4.3 V. (Fig. 4-9)
- (4) Set the lever to MIX end point and adjust R167 so that the voltage at TP-14 is 4.8 V. (Fig. 4-9)
- (5) As this adjustment affects each other, repeat procedures a few times.



VR: R170 (MIX GAIN)

VR: R167 (MIX DC)

Fig. 5-12

5-9 MIX lever level adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|---------------------------------|-----------------------|--------------|----------------------|
| — | CENTER terminal of MIX FADER VR | R198 MIX-L (LB BOARD) | 4.0 V | Digital Voltmeter |
| | | R180 MIX-H (LB BOARD) | 5.0 V | |

■ Adjustment procedures

Move the MIX FADER lever as shown below and adjust R198 (MIX-L) and R180 (MIX-H) so that the center terminal voltage of MIX FADER VR is as specified.

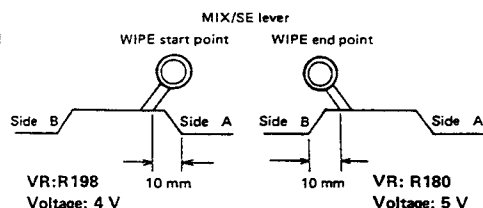




Fig. 5-13

5-10 SOFT WIPE adjustment

■ Adjustment points

| Input signal | Observe | VR | Signal level | | Measuring instrument |
|----------------------|-------------------|-----------------------------|------------------------------|-----|-------------------------------------|
| | | | NTSC | PAL | |
| 100% WHITE Signal | PGM-1 (OUTPUT) | R181 SOFT (H) (LB BOARD) | 2.0 μ s | | Oscilloscope: H-rate, 10 μ s |
| 0% BLACK Signal | | R184 SOFT (L) (LB BOARD) | 1.0 μ s | | |
| | | | R192 SOFT-BAL (WFP BOARD) | — | |

■ Adjustment procedures

- Apply 100% white signal to INPUT 1 and 0% black signal to INPUT 2.
- Set the unit to wipe mode .
- Set SOFT/HARD switch to SOFT.
- Connect an oscilloscope to PGM-1.
- Adjust R183 (SOFT-L) so that H. WIPE width is 1.0 μ s when the SOFTNESS knob is set to minimum. Adjust R181 (SOFT-H) so that H. WIPE width is 2.0 μ s when the SOFTNESS knob is set to maximum.
- Connect a Color Monitor to PGM-1.
- Set the unit to wipe mode .
- Adjust the SOFTNESS knob so that wipe edge of WHITE and BLACK is soft on the monitor. Adjust R192 (SOFT-BAL) on WFP BOARD so that the soft wipe effects equally to horizontal and vertical edges.

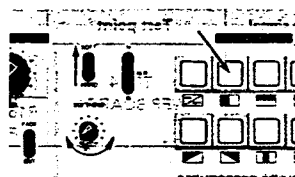


Fig. 5-14



Fig. 5-15

6. VIDEO OUTPUT LEVEL ADJUSTMENT

Before starting adjustments, connect the unit as shown below.

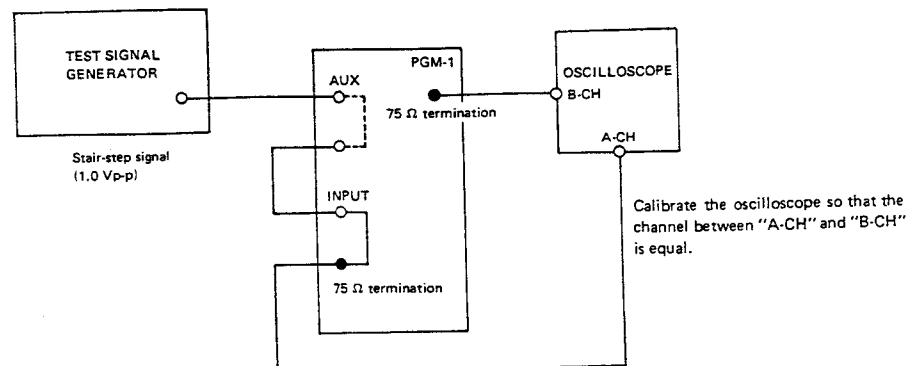


Fig. 6-1

6-1 INPUT level adjustment without special effect

■ Adjustment points

| Input signal | Test point | VR [CP BOARD] | Signal level | Measuring instrument |
|------------------------------|------------|----------------|---------------------------------|--|
| Stair-step Signal (1.0 Vp-p) | PGM-1 | R215 PGM LEVEL | 1.0 Vp-p (Same as INPUT signal) | Oscilloscope: H-rate, 10 μ s (75 Ω termination) |
| | PVM | R301 PVW LEVEL | | |

■ Adjustment procedures

- Set A, B and C bus-lines to "1".
- Set the program switch to AUX.
- Connect an oscilloscope A-Ch to STAIR-STEP SIGNAL and B-ch to PGM-1.
- Adjust R215 (PGM LEVEL) so that the ratio between the input and program output is 1 : 1.
- Connect an oscilloscope A-ch to preview output.
- Set the preview bus-line to "1".
- Adjust R301 (PVM LEVEL) so that ratio between input and preview output is 1 : 1.
- Set the PROGRAM selector to EFT.

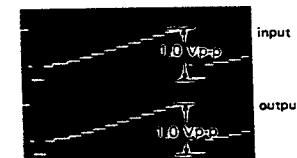


Fig. 6-2

6-2 MIX/SE CIRCUIT INPUT level adjustment

Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|---------------------------------|-----------------------|-------------------------------|---------------------------------------|--|
| Stair-step Signal (1.0 Vp-p) | TP-3 (VIDEO BOARD) | R41 A-GAIN (VIDEO BOARD) | 1.0 Vp-p (Same as INPUT signal) | Oscilloscope: H-rate, 10 μ s (75 Ω termination) |
| | | R46 B-GAIN (VIDEO BOARD) | | |
| | | R64 B-SET-UP (VIDEO BOARD) | — | |

Adjustment procedures

- (1) Connect an oscilloscope B-ch to TP-3 (VIDEO BOARD).
- (2) Set A, B and C bus-lines to "1".
- (3) Set the MIX/SE lever to A and adjust R41 (A-GAIN) so that the input and output level are the same (1.0 Vp-p).
- (4) Set the MIX/SE lever to direction B and adjust R46 (B-GAIN) so that the INPUT and TP-3 level are the same (1.0 Vp-p), then adjust R64 (B-SETUP).

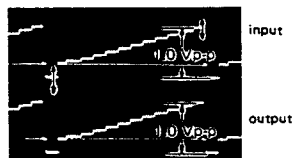


Fig. 6-3

6-3 MIX CIRCUIT INPUT level adjustment

Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|---------------------------------|-----------------------|-------------------------------|---------------------------------------|--|
| Stair-step Signal (1.0 Vp-p) | TP-6 (VIDEO BOARD) | R109 SE-GAIN (VIDEO BOARD) | 1.0 Vp-p (Same as INPUT signal) | Oscilloscope: H-rate, 10 μ s (75 Ω termination) |
| | | R116 C-GAIN (VIDEO BOARD) | | |
| | | R83 C SET-UP (VIDEO BOARD) | — | Oscilloscope: DC range |

Adjustment procedures

- (1) Connect an oscilloscope B-ch to TP-6 (VIDEO BOARD).
- (2) Set A, B and C bus-lines to "1".
- (3) Set the MIX/SE lever to A.
- (4) Set the MIX lever to MIX/SE.
- (5) Adjust R109 (SE-GAIN) so that the input and TP-6 level are the same (1.0 Vp-p).
- (6) Set the MIX lever to C and adjust R111 (C-GAIN) so that the input and TP-6 level are the same (1.0 Vp-p).
- (7) Observe the level at TP-6 with the oscilloscope DC range.
Adjust R83 (C SET-UP) so that the DC levels are the same when the MIX lever is turned to A and MIX/SE side.

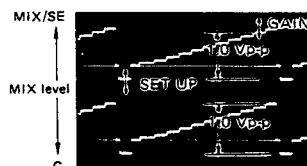


Fig. 6-4

6-4 DSK level adjustment

Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|---------------------------------|-----------------------|----------------------------------|---------------------------------------|--|
| Stair-step Signal (1.0 Vp-p) | TP-7 (VIDEO BOARD) | R155 VIDEO GAIN (VIDEO BOARD) | 1.0 Vp-p (Same as INPUT Signal) | Oscilloscope: H-rate, 10 μ s (75 Ω termination) |

Adjustment procedures

- (1) Connect an oscilloscope B-ch to TP-7 (VIDEO BOARD).
- (2) Set INPUT A bus-line to "1".
- (3) Set the MIX/SE lever to A and MIX lever to MIX/SE.
- (4) Turn the DSK SW OFF.
- (5) Adjust R155 (VIDEO GAIN) so that the input and TP-7 levels are the same (1.0 Vp-p).

6-5 VIDEO FADER level adjustment

Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|---------------------------------|-------------------|----------------------------------|---------------------------------------|--|
| Stair-step Signal (1.0 Vp-p) | PGM-1 (OUTPUT) | R215 VIDEO GAIN (VIDEO BOARD) | 1.0 Vp-p (Same as INPUT Signal) | Oscilloscope: H-rate, 10 μ s (75 Ω termination) |
| | | R227 TOTAL SETUP (CP BOARD) | | |

Adjustment procedures

- (1) Connect an oscilloscope B-ch to PGM-1.
- (2) Turn R225 (W-CLIP) fully clockwise.
- (3) Adjust R215 (VIDEO GAIN) so that the input and PGM-1 levels are the same (1.0 Vp-p).
- (4) Adjust R227 (TOTAL SETUP) so that the input and PGM-1 output are equal.

6-6 Program output level adjustment

Adjustment points

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|-------------------|-------------------------------|--------------|-------|--|
| | | | NTSC | PAL | |
| — | PGM-1 (OUTPUT) | R219 BB GAIN (VIDEO BOARD) | 0.286 V | 0.3 V | Oscilloscope: H-rate, 20 μ s (75 Ω termination) |
| | | R11 BF LEVEL (BC BOARD) | 0.286 V | 0.3 V | |

Adjustment procedures

- (1) Set A, B and C bus-lines to "2".
- (2) Connect an oscilloscope to PGM-1 and adjust R219 (B.B. GAIN) for sync level. (Fig. 6-5)
- (3) Adjust R11 (BF LEVEL) for burst level. (Fig. 5-5)

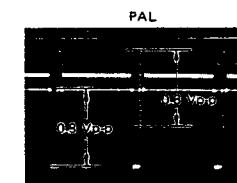
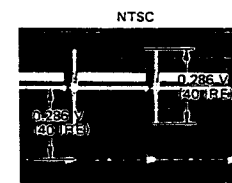


Fig. 6-5

7 BACKGROUND COLOR SIGNAL ADJUSTMENT

Before starting adjustments, proceed as follows.

- (1) Move the BC board to the outside by using the PWB extender provided to adjust it.
- (2) Set the INPUT A bus-line to "COLOR".
- (3) Connect an oscilloscope and a vectorscope to PGM-1.
- (4) Set the MIX/SE lever to A.
- (5) Set the MIX lever to MIX/SE.
- (6) Set the COLOR ON/OFF switch on the control unit to ON.
- (7) Adjust SAT and LUM knobs so that the color signal is output at PGM-1.
(If the signal is not output, slightly turn R4 [SAT-L] and R6 [LUM-H] on the DS BOARD.)
- (8) Fully turn R225 (W-CLIP) on VIDEO BOARD clockwise.

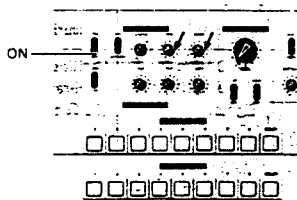


Fig. 7-2

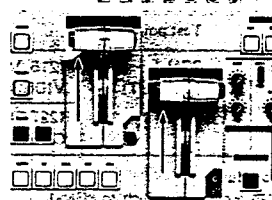


Fig. 7-3

7-1 Luminance signal adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------|----------------------|--------------|-------------------------------------|
| — | PGM-1 (OUTPUT) | R6 LUM-L (BCC BOARD) | — | Oscilloscope: H-rate, 10 μ s |
| | | R4 LUM-H (BCC BOARD) | 0.8 Vp-p | |

■ Adjustment procedures

- (1) Set the COLOR ON/OFF switch to OFF.
- (2) Set the SAT knob to minimum.
- (3) Set the LUM knob to scale "2".
- (4) Adjust R6 (LUM-L) so that the video level is 0%.
- (5) Set the LUM knob to maximum.
- (6) Adjust R14 (LUM-H) so that the video level is 0.8 Vp-p.



Fig. 7-4

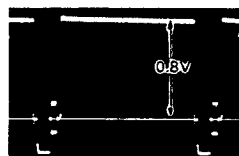


Fig. 7-5

7-2 Saturation adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------|------------------------|--------------|-------------------------------------|
| — | PGM-1 (OUTPUT) | R11 SAT-H (BCC BOARD) | — | Oscilloscope: H-rate, 10 μ s |
| | | R4 SAT-L (BCC BOARD) | — | |
| | | R221 BC SAT (BC BOARD) | 0.8 V | |

■ Adjustment procedures

- (1) Turn R11 (SAT-H) fully counterclockwise.
- (2) Set the COLOR SAT knob on the control unit to MAX.
- (3) Adjust R4 (SAT-L) so that the SAT level is maximum.
- (4) Adjust R221 (BC SAT) on the BC BOARD so that the PGM-1 level is 0.8 V.
- (5) Set the COLOR SAT knob on the control unit to scale 1—2 and confirm that the color level is less than 10%. If the level exceeds 10%, turn R4 (SAT-L) to decrease the level and adjust R221 (BC SAT) again so that the output level is 0.8 V.

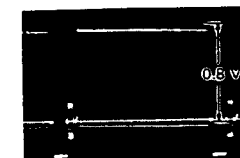



Fig. 7-6

7-3 HUE adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|-------------------|----------------------------|---|-----|--|
| | | | NTSC | PAL | |
| — | PGM-1 (OUTPUT) | R2 HUE-L (BCC BOARD) | — | | Oscilloscope: H-rate, 10 μs Vectorscope: |
| | | R8 HUE-H (BCC BOARD) | — | | |
| | | C78 BC PHASE (BC BOARD) |  | — | |

■ Adjustment procedures

NTSC

- (1) Connect an oscilloscope and vectorscope to PGM-1.
- (2) Adjust SAT knob on the control unit so that the signal level on the oscilloscope is 0.7 Vp-p.
- (3) Turn the HUE knob fully clockwise.
- (4) Set R8 (HUE-H) to mechanical center of VR.
- (5) Turn the HUE knob fully counterclockwise and adjust R2 (HUE-L) so that the dot in the vectorscope rotates by $380 \pm 10^\circ$. If the adjustment is not enough with R2 (HUE-H), turn R8 (HUE-H).



Fig. 7-7

PAL

- (1) Connect an oscilloscope and vectorscope to PGM-1.
- (2) Adjust SAT knob on the control unit so that the signal level on the oscilloscope is 0.7 Vp-p.
- (3) Adjust HUE knob and adjust C78 (BC PHASE) on the BC BOARD so that two dots are in the horizontal line on the vectorscope. The misalignment should be within $\pm 20\%$.
- (4) Turn the HUE knob fully clockwise.
- (5) Set R8 (HUE-H) to mechanical center of VR.
- (6) Turn the HUE knob fully counterclockwise and adjust R2 (HUE-L) so that the dot in the vectorscope rotates by $380 \pm 10^\circ$. If the adjustment is not enough with R2 (HUE-L), turn R8 (HUE-H).

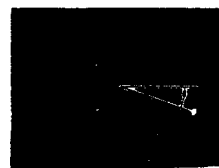


Fig. 7-8

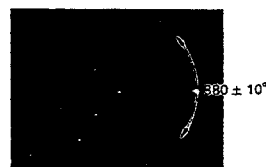


Fig. 7-9

8. SUPERIMPOSE ADJUSTMENT

Transmitting station

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|----------------------|-------------------|---------------------------|--------------|-------------------------------------|
| Stair-step Signal | PGM-1 (OUTPUT) | R14 SUPER-L (CK BOARD) | — | Oscilloscope: H-rate, 20 μ s |
| | | R16 SUPER-H (CK BOARD) | 0.8 Vp-p | |

■ Adjustment procedures

- (1) Apply a stair-step signal to SUPER INPUT connector through GEN-LOCK INPUT.
- (2) Set the CUT-FADE switch to CUT.
- (3) Set the SUPER ON/OFF switch to ON.
- (4) Adjust R14 (SUPER-L) so that the super starts when the super level is set to scale 3.
- (5) Set the level knob to MAX and adjust R16 (SUPER-H) so that 0.8 Vp-p is obtained.

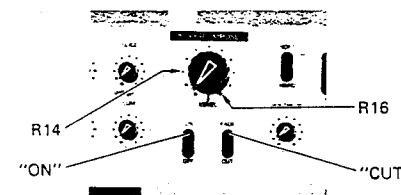


Fig. 8-1

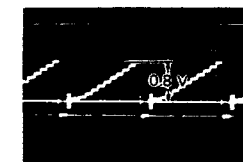


Fig. 8-2

9. DSK SIGNAL ADJUSTMENT

Before starting adjustments, proceed as follows.

- (1) Move the BC BOARD to the outside by using the PWB extender provided to adjust it.
- (2) Apply a window pattern signal of test signal generator to DSK input connector through GEN-LOCK INPUT.
- (3) Connect an oscilloscope to TP-2 (VIDEO BOARD).
- (4) Set the DSK switch on the control panel to ON.
- (5) Turn the SLICE and LEVEL knobs so that the DSK signal is output. (If the DSK signal is not output, slightly turn R4 [SAT-L] and R6 [LUM-H] or the DS BOARD.)

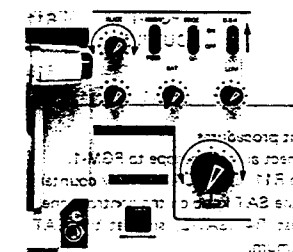


Fig. 9-2

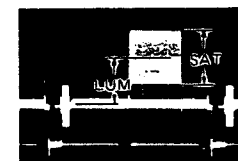


Fig. 9-1

9-1 Luminance adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------------------|--------------------|---------------------------------|--------------|-------------------------------------|
| Window Pattern Signal | TP-2 (BC BOARD) | R 6 LUM-L (DS BOARD) | MAX | Oscilloscope: H-rate, 20 μ s |
| | | R14 LUM-H (DS BOARD) | 0.8 V | |
| | PGM-1 | R159 DSK GAIN (VIDEO BOARD) | 0.8 V | |
| | | R73 DSK SET-UP (VIDEO BOARD) | — | |

■ Adjustment procedures

- (1) Set the SAT knob to minimum.
- (2) Set the LUM knob on the control panel to scale 2.
- (3) Adjust R6(LUM-L) so that the video level is 0%.
- (4) Set the LUM knob to MAX.
- (5) Adjust R14 (LUM-H) so that the video level is 0.8 Vp-p.
- (6) Connect an oscilloscope to PGM-1 (rear of MAIN UNIT).
Adjust R159 (DSK GAIN) on VIDEO BOARD so that the video level is 0.8 Vp-p.
- (7) Turn DSK EDGE switch to ON.
- (8) Adjust R73 (DSK SET-UP) on VIDEO BOARD so that edge signal and black level of video signal are the same.



Fig. 9-3



Fig. 9-4

9-2 Saturation adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------------------|-------------------|---------------------------|--------------|-------------------------------------|
| Window Pattern Signal | PGM-1 (OUTPUT) | R4 SAT-L (DS BOARD) | — | Oscilloscope: H-rate, 20 μ s |
| | | R11 SAT-H (DS BOARD) | MAX | |
| | | R165 BC SAT (BC BOARD) | 0.8 V | |

■ Adjustment procedures

- (1) Connect an oscilloscope to PGM-1.
- (2) Turn R11 (BCC BOARD) fully counterclockwise.
- (3) Set the SAT knob on the control panel to MAX.
- (4) Adjust R4 (SAT-L) so that the SAT level is maximum.
- (5) Adjust R165 (BC SAT) on BC BOARD so that the output level is 0.8 V.
- (6) After adjustment, confirm that the SAT level is less than 10% when the SAT knob is set to scale 1-2.
If the SAT level exceeds 10%, slightly turn R4 (SAT-L) to decrease the level and adjust R165 (BC BOARD) again to obtain 0.8 V.

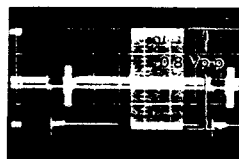


Fig. 9-5

9-3 HUE adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | | Measuring instrument |
|--------------|-------------------|-----------------------------|--------------|-----|---|
| | | | NTSC | PAL | |
| — | PGM-1 (OUTPUT) | R2 HUE-L (BCC BOARD) | — | — | Oscilloscope: H-rate, 10 μ s Vectorscope: |
| | | R8 HUE-H (BCC BOARD) | — | — | |
| | | C55 DSK PHASE (BC BOARD) | — | — | |

■ Adjustment procedures

NTSC

- (1) Connect an oscilloscope and vectorscope to PGM-1.
- (2) Adjust SAT knob on the control unit so that the video level on the oscilloscope is 0.7 Vp-p.
- (3) Turn the HUE knob fully clockwise.
- (4) Set R8 (HUE-H) to mechanical center of VR.
- (5) Turn the HUE knob fully counterclockwise and adjust R2 (HUE-L) so that the dot in the vectorscope rotates by $380 \pm 10^\circ$. If the adjustment is not enough with R2, turn R8.

PAL

- (1) Connect an oscilloscope and vectorscope to PGM-1.
- (2) Adjust SAT knob on the control unit so that the video level on the oscilloscope is 0.7 Vp-p.
- (3) Adjust HUE knob and adjust C55 (DSK PHASE) on the BC BOARD so that two dots are in the horizontal line. The mis-alignment should be within $\pm 20\%$.
- (4) Fully turn the HUE knob clockwise.
- (5) Set R8 (HUE-H) to center of VR.
- (6) Fully turn the HUE knob counterclockwise and adjust R2 (HUE-L) so that the dot in the vectorscope rotates by $380 \pm 10^\circ$. If the adjustment is not enough with R2, turn R8.



Fig. 9-6

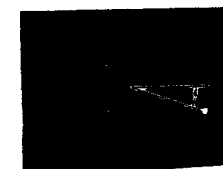


Fig. 9-7

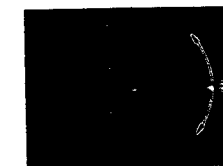


Fig. 9-8

Before starting adjustments, proceed as follows.

- (1) Move the WFP BOARD to the outside by using the PWB extender provided to adjust it.
- (2) Set INPUT C bus-line to "COLOR".
- (3) Set MIX lever to C.
- (4) Connect a color monitor to PGM-1 (rear of MAIN UNIT).
- (5) Adjust HUE, SAT and LUM knobs to determine the background color.
- (6) Apply a window pattern signal to DSK INPUT connectors through GEN-LOCK INPUT.
- (7) Set DSK ON/OFF switch to ON.
- (8) Turn the DSK knob so that the output level is 100%. (Adjust so that the video level at PGM-1 is 0.7 Vp-p.)

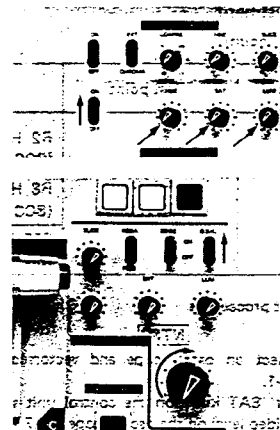


Fig. 9-9

9-4 DSK EDGE adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|-----------------------|----------------|---------------------------|--------------|----------------------|
| Window Pattern Signal | PGM-1 (OUTPUT) | R245 DSK-EDGE (WFP BOARD) | — | Color Monitor TV |

■ Adjustment procedures

- (1) Set EDGE switch on the control unit to ON.
- (2) Adjust R245 (DSK-EDGE) so that the horizontal edges of the window are black.

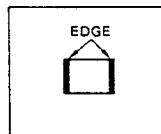


Fig. 9-10

9-5 DSK LEVEL adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|-----------------------|----------------|-------------------------------|--------------|----------------------|
| Window Pattern Signal | PGM-1 (OUTPUT) | R200 DSK LEVEL (L) (LB BOARD) | — | Color Monitor TV |
| | | R202 DSK LEVEL (H) (LB BOARD) | — | |

■ Adjustment procedures

- (1) Set NEGA/POSI switch to NEGA.
- (2) Set EDGE switch to OFF.
- (3) Set DSK level to maximum.
- (4) Turn the SLICE knob and adjust R200 (DSK LEVEL-L) so that the DSK functions at a scale 2 and DSK stops at a scale 6.
- (5) Set the NEGA/POSI switch to POSI.
- (6) Turn LEVEL knob and adjust R202 (DSK LEVEL-H) so that the DSK stops at a scale 3 and DSK functions at maximum.

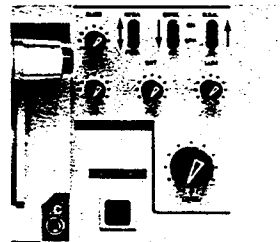


Fig. 9-11

9-6 DSK PREVIEW output signal adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|-----------------------|----------------------|---------------------------------|---------------------|----------------------|
| Window Pattern Signal | DSK PREVIEW (OUTPUT) | R166 PVW GAIN (VIDEO BOARD) | Same level as PGM-1 | Oscilloscope |
| | | R167 DSK PVW GAIN (VIDEO BOARD) | | |

■ Adjustment procedures

- (1) Connect an oscilloscope A-ch to PGM-1 and B-ch to DSK PREVIEW OUTPUT.
- (2) Adjust R166 and R167 so that the output at DSK PREVIEW OUTPUT equals to PGM-1.

9-7 DSK SLICE adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|-------------------|----------------|-------------------------------|--------------|----------------------|
| STAIR-STEP Signal | PGM-1 (OUTPUT) | R204 DSK-SLICE (L) (LB BOARD) | — | Color Monitor |
| | | R205 DSK-SLICE (H) (LB BOARD) | — | |

■ Adjustment procedures

- (1) Apply a stair-step signal to DSK INPUT connector through GEN-LOCK INPUT.
- (2) Set INPUT C bus-line to "COLOR" and generate 100% white signal to be used as a background color signal.
- (3) Set MIX lever to C.
- (4) Set NEGA/POSI switch to POSI.
- (5) Set EDGE switch to OFF.
- (6) Set DSK LUM knob to MAX.
- (7) Set DSK ON/OFF switch to ON.
- (8) Adjust R204 (DSK SLICE-L) so that the second step from the left is sliced when the SLICE knob is set to fully clockwise.
- (9) Adjust R205 (DSK SLICE-H) so that the stair-step pattern is not sliced and background color appears when the SLICE knob is set to minimum.

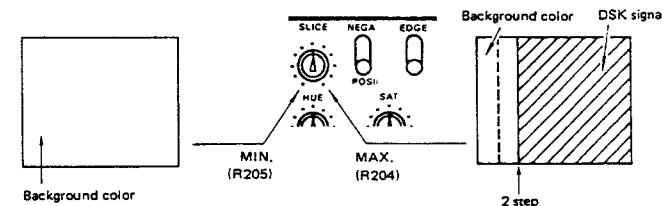


Fig. 9-12

10 CHROMA KEY SIGNAL ADJUSTMENT

10-1 EXT KEY SLICE level adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|---|----------------|----------------------|--------------|-----------------------------------|
| <ul style="list-style-type: none"> Color Signal (R, G, B) Stair-step Signal | PGM-1 (OUTPUT) | R9 SLICE (CK BOARD) | — | Color Monitor TV (under-scanning) |
| | | R10 SLICE (CK BOARD) | — | |

■ Adjustment procedures

- Apply stair-step signal to EXT KEY INPUT.
- Apply color signals (R, G, B) to CHROMA KEY INPUT.
- Apply different input to INPUT A and B.
(Ex. Input A ... Color camera
Input B ... Background color)
- Connect a color monitor TV to PGM-1.
- Set CHROMA KEY ON/OFF switch to ON.
- Set EXT-CHROMA switch to EXT.
- Set MIX/SE lever to A.
- Set the SLICE knob on the panel to minimum and adjust R9 (SLICE) on the CK BOARD so that the color monitor displays input A.
- Set the SLICE knob on the panel to scale 8.
- Adjust R10 (SLICE) on the CK BOARD so that the color monitor displays input B.

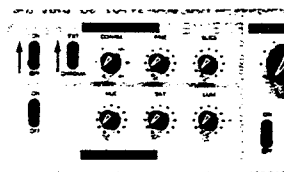


Fig. 10-1

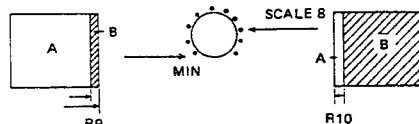


Fig. 10-2

10-2 CHROMA KEY FINE level adjustment

■ Adjustment points

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|----------------------------|----------------------|--------------|----------------------|
| — | Center terminal of FINE VR | R2 FINE-L (CK BOARD) | +3 V | Digital Voltmeter |
| | | R4 FINE-H (CK BOARD) | +5 V | |

■ Adjustment procedures

- Set MIX/SE lever to A.
- Set MIX lever to MIX/SE.
- Set the WIPE MODE to MIX/KEY.
- Set the CHROMA KEY ON/OFF switch to ON.
- Set the CHROMA/EXT switch to CHROMA.
- Adjust the voltage of center terminal of FINE VR with R2 (FINE-L) and R4 (FINE-H).

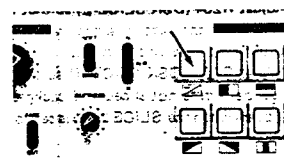


Fig. 10-3

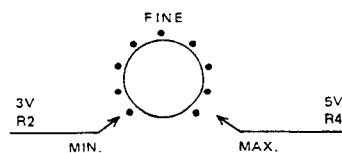


Fig. 10-4

11 PHASE ADJUSTMENT

Before starting adjustments, proceed as follows.

- Apply a color bars signal (1.0 Vp-p) to INPUT 1 through GEN-LOCK INPUT.
- Connect a vectorscope to PGM-1.
- Set A, B and C bus-lines to "1".

11-1 SC PHASE adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|-------------------|----------------|---|--------------|----------------------|
| Color-Bars Signal | PGM-1 (OUTPUT) | R18 (NTSC) SC PHASE R19 (PAL) (SG BOARD) | — | Vectorscope |

■ Adjustment procedures


- Set the MIX/SE lever to A.
- Set the MIX lever to MIX/SE.
- Adjust PAL-R19, NTSC-R18 (SC PHASE) on SG BOARD so that signal of PGM-1 output is right color-bar phase.

11-2 Phase adjustment between A and B bus-lines

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|-------------------|----------------|---------------------------|--------------|----------------------|
| Color-Bars Signal | PGM-1 (OUTPUT) | R14 B PHASE (VIDEO BOARD) | — | Vectorscope |

■ Adjustment procedures

- Select wipe mode to .
- Set the MIX/SE lever to its center.
- Set the MIX lever to MIX/SE.
- Adjust R14 (B-PHASE) so that color dots of A and B bus-line signals are on the same positions.

11-3 SE phase adjustment

■ Adjustment point

| Input signal | Test point | VR | Signal level | Measuring instrument |
|------------------|----------------|----------------------------|--------------|----------------------|
| Color-Bar Signal | PGM-1 (OUTPUT) | R85 SE PHASE (VIDEO BOARD) | — | Vectorscope |

■ Adjustment procedures

- Set the MIX/SE lever to A.
- Select the C bus-line to SE.
- Adjust R85 (SE PHASE) so that the dots are on the same positions when the MIX lever sets to C and MIX/SE.

11-4 C bus-line phase adjustment

- **Adjustment point**

| Input signal | Test point | VR | Signal level | Measuring instrument |
|---------------------|-------------------|-----------------------------|--------------|----------------------|
| Color-Bar Signal | PGM-1 (OUTPUT) | R68 CPHASE (VIDEO BOARD) | - | Vectorscope |

- **Adjustment procedures**

- (1) Select the C bus-line to "1".
- (2) Set the MIX/SE lever to A.
- (3) Adjust R68 (C PHASE) so that the dots are on the same positions when the MIX/SE lever sets to C and MIX/SE.

12. FREQUENCY RESPONSE ADJUSTMENT

- **Adjustment points**

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|-----------------------|-------------------------------------|--------------|------------------------------------|
| Sweep Signal | TP-3 (VIDEO BOARD) | C30 A-HF C33 B-HF (VIDEO BOARD) | — | Oscilloscope (75 Ω termination) |
| | TP-6 (VIDEO BOARD) | C70 SE-HF C73 C-HF (VIDEO BOARD) | — | |
| | TP-9 (VIDEO BOARD) | C136 VIDEO-HF (VIDEO BOARD) | — | |
| | PGM-1 (OUTPUT) | C24 HF-ADJ (CP BOARD) | — | |

- **Adjustment procedures**

- (1) Apply a sweep signal to INPUT 1 connector through GEN-LOCK INPUT. (75Ω termination)
- (2) Set A, B and C bus-lines to "1".
- (3) Connect an oscilloscope A-ch to INPUT 1 and B-ch to TP-3 on VIDEO BOARD.
- (4) Adjust frequency response nearly equals to that of INPUT when the MIX/SE lever sets to A and B.

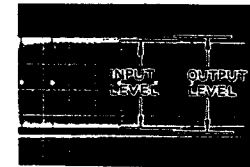


Fig. 12-1

- Fig. 12-1
- MIX/SE lever < A - C30 (A-HF)
B - C33 (B-HF)
- (5) Connect an oscilloscope A-ch to INPUT 1 and B-ch to TP-6 on VIDEO BOARD.
MIX lever < MIX/SE - C70 (SE-HF)
C - C73 (C-HF)
- (6) Adjust frequency response nearly equals to that of INPUT when the MIX lever sets to MIX/SE and C.
- (7) Connect an oscilloscope A-ch to INPUT 1 and B-ch to TP-9 on VIDEO BOARD.
Adjust C136 (VIDEO-HF) so that the frequency response nearly equals to that of the input.
- (8) Connect an oscilloscope A-ch to INPUT 1 and B-ch to PGM-1 (75 Ω termination).
Adjust C24 (CP BOARD) so that the frequency response nearly equals to that of the input.

NOTE: As this adjustment affects PGM-out PHASE, and so repeat adjustment 11. and 12. a few time.

13. WHITE CLIP ADJUSTMENT

- **Adjustment point**

| Input signal | Test point | VR | Signal level | Measuring instrument |
|-------------------|-------------------|------------------------------|--------------|-------------------------------------|
| Stair-step Signal | PGM-1 (OUTPUT) | R225 W-CLIP (VIDEO BOARD) | — | Oscilloscope: H-rate, 10 μ s |

- Adjustment procedures

- (1) Apply stair-step signal to INPUT 1.
Remove 75 Ω input termination to increase a signal of more than 1 Vp-p.
- (2) Set INPUT C bus-line to 1.
- (3) Set MIX lever to C.
- (4) Connect an oscilloscope to PGM-1.
- (5) Adjust R225 (W-CLIP) so that the signal clipped at 120%.

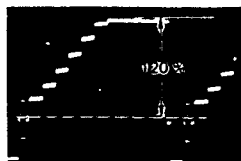


Fig. 13-1

14. AUTO FADE TIME ADJUSTMENT

- **Adjustment points**

| Input signal | Test point | VR | Signal level | Measuring instrument |
|--------------|--------------------------|------------------------------|--------------|----------------------|
| — | CN01 Pin ⑫ (LB BOARD) | R162 RISE TIME (LB BOARD) | 6 sec | Oscilloscope: |
| | | R160 FALL TIME (LB BOARD) | 6 sec | |

- Adjustment procedures

- (1) Select the PROGRAM selector to "BLACK".
- (2) Connect an oscilloscope to CN01 pin ⑫ on LB BOARD.
- (3) Adjust R162 (RISE TIME) so that rise time is 2 sec, when select the PROGRAM selector from "BLACK" to "EFF". (Fig. 14-1)
- (4) Adjust R160 (FALL TIME) so that fall time is 2 sec, when select the PROGRAM selector from "EFF" to "BLACK". (Fig. 14-2)

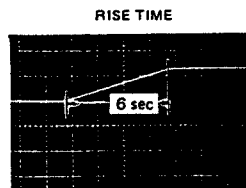


Fig. 14-1

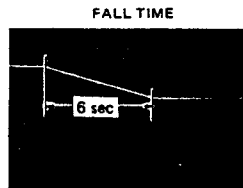


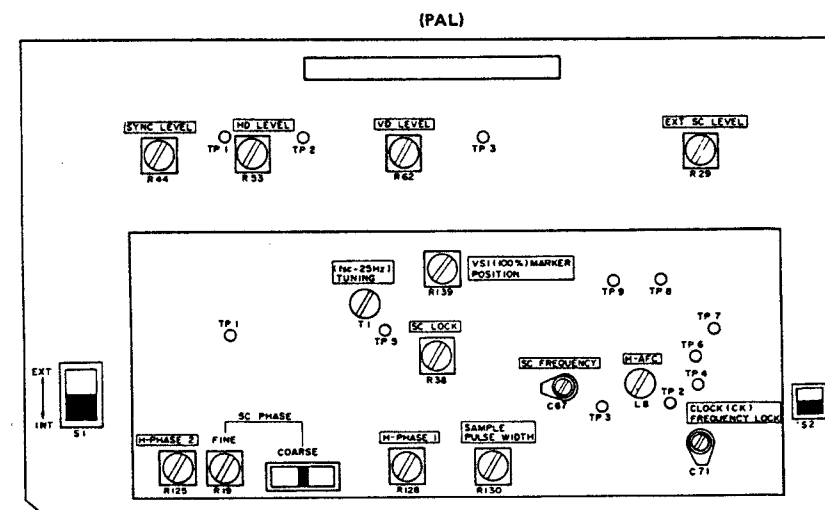
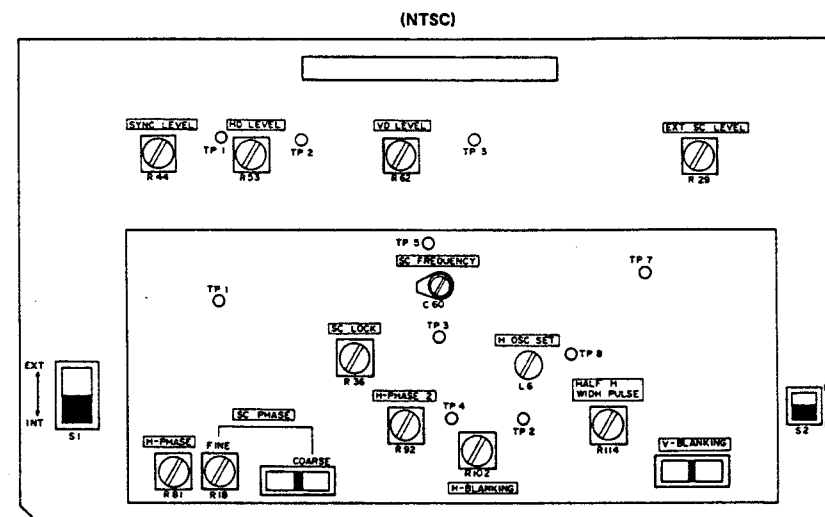
Fig. 14-2

NOTE: When the RISE (FALL) TIME is adjusted 6 sec, FADE IN (OUT) TIME is nearly 4.5 sec.
If RISE (FALL) TIME is set long time, start of FADE IN (FADE OUT) are lagged.

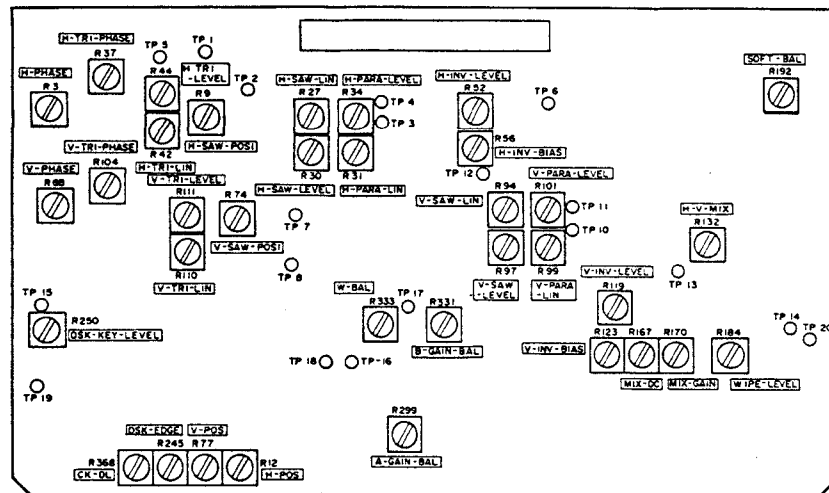
SECTION 4

POSITION OF TEST POINT AND POTENTIOMETER

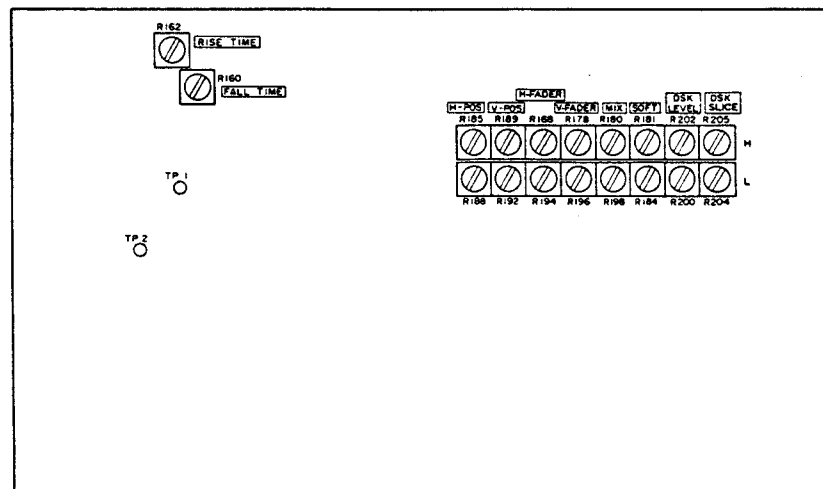
4.1 SG BOARD



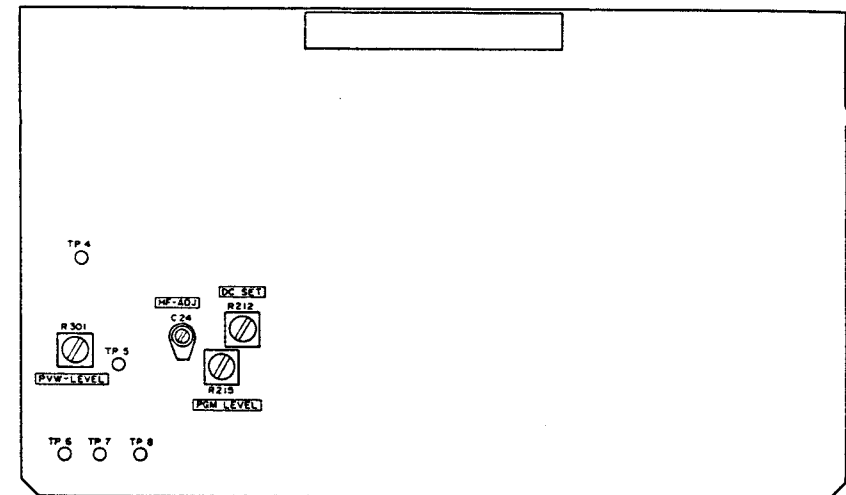
EXT
↑
↓
INT



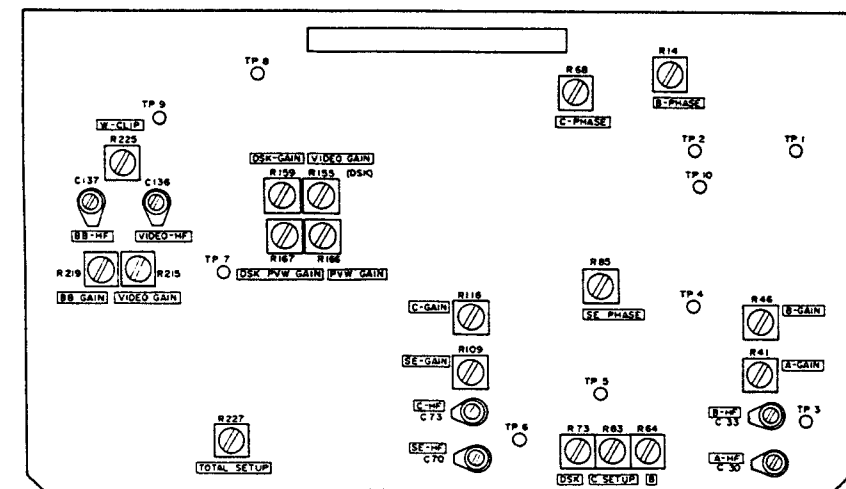
4.3 LB BOARD



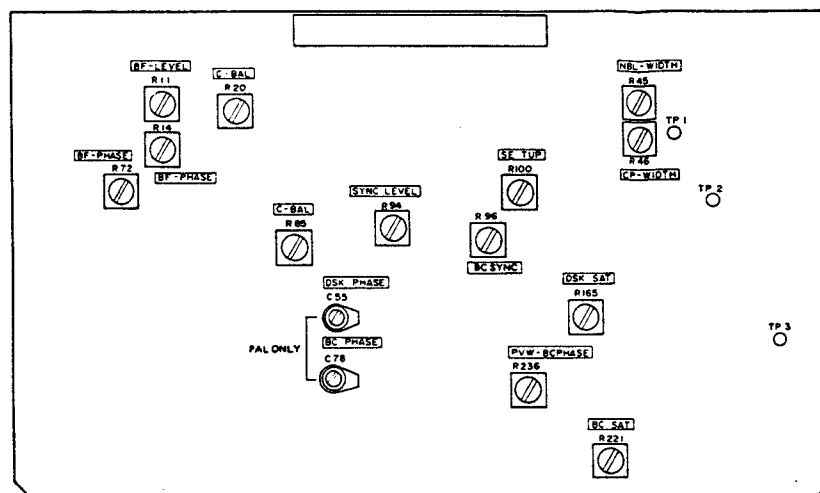
4.4 CP BOARD



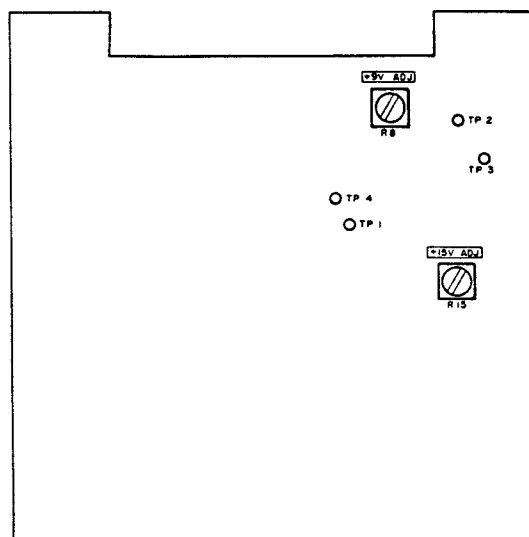
4.5 VIDEO BOARD



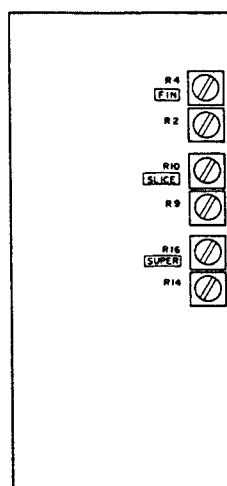
4.6 BC BOARD



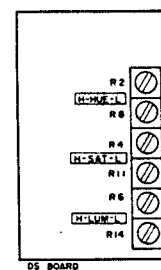
4.7 PS BOARD



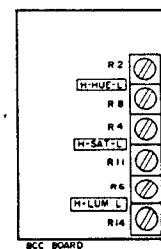
4.8 CK BOARD



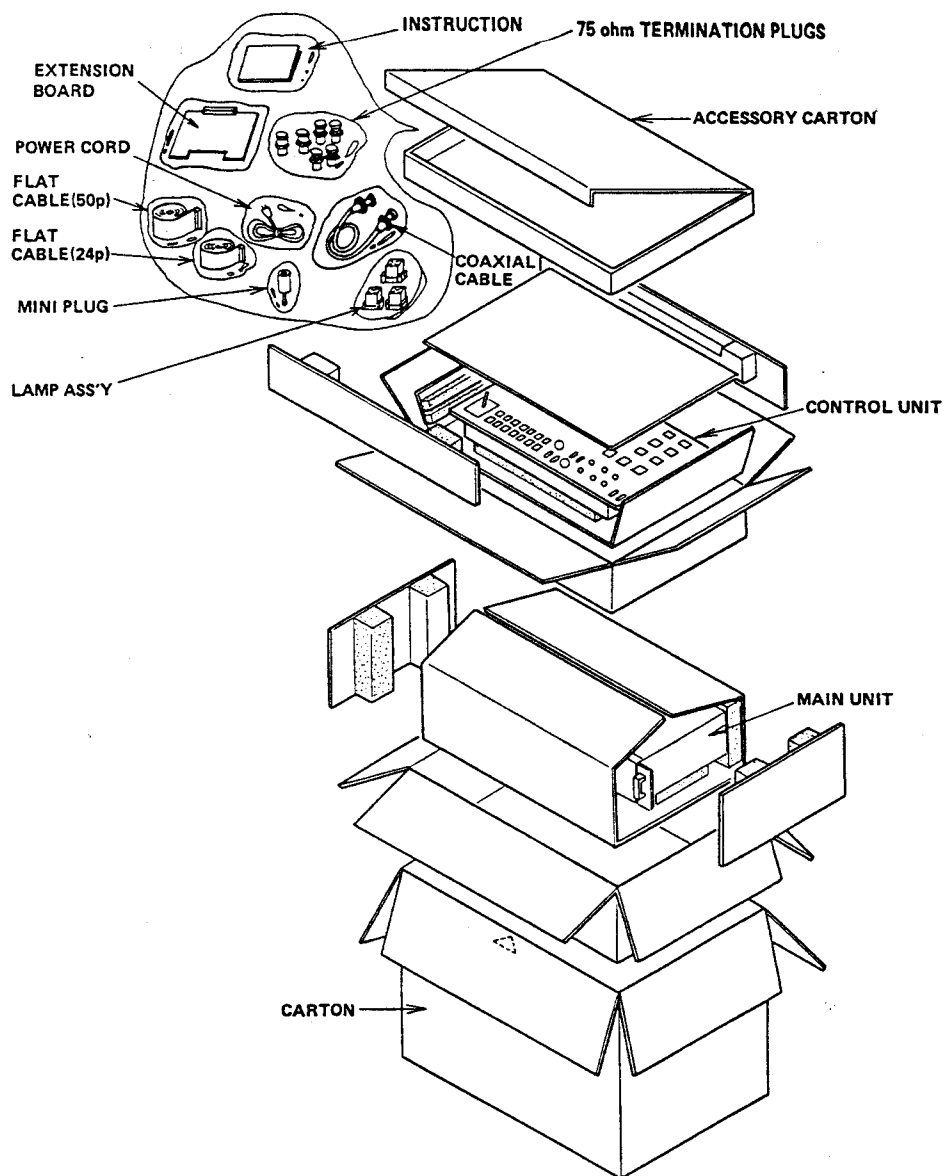
4.9 DS BOARD



4.10 BCC BOARD



SECTION 5 REPACKING



SECTION 6 EXPLODED VIEWS AND PARTS LIST

- 6.1 MIX/SE LEVER ASS'Y
6.2 MIX LEVER ASS'Y
6.3 CONTROL UNIT ASS'Y
6.4 KEY KNOB ASS'Y

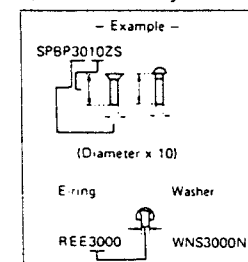
Note: In this exploded views the part number of the screws and washers designate the type and dimensions of those items.

The following examples will help you to decipher them.

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---------------|----------------|---------------|---------------|----------|----------|--------------|--------------|-----------|-----------|
| Type of screw | Type of screw | Type of screw | Type of screw | Diameter | Diameter | Length in mm | Length in mm | ISO screw | ISO screw |
| S | Normal screw | S | Normal screw | | | | | | |
| N | Assembly screw | S | Normal screw | | | | | | |
| L | " | S | Normal screw | | | | | | |
| D | " | S | Normal screw | | | | | | |
| G | " | S | Normal screw | | | | | | |
| M | W. Wood screw | S | Normal screw | | | | | | |
| F | Feather screw | S | Normal screw | | | | | | |
| T | Set screw | S | Normal screw | | | | | | |
| Y | " | S | Normal screw | | | | | | |
| B | Bolt | S | Normal screw | | | | | | |
| N | Nut | S | Normal screw | | | | | | |
| W | Washer | S | Normal screw | | | | | | |
| R | E-ring | S | Normal screw | | | | | | |
| E | " | S | Normal screw | | | | | | |
| P | Spring | S | Normal screw | | | | | | |

| 1-1 | Type of screw |
|-----|---------------------------|
| P | Cross-Recessed head screw |
| A | Tapping screw |
| B | Tapping screw |
| T | Tapping screw |
| E | Tapping screw |

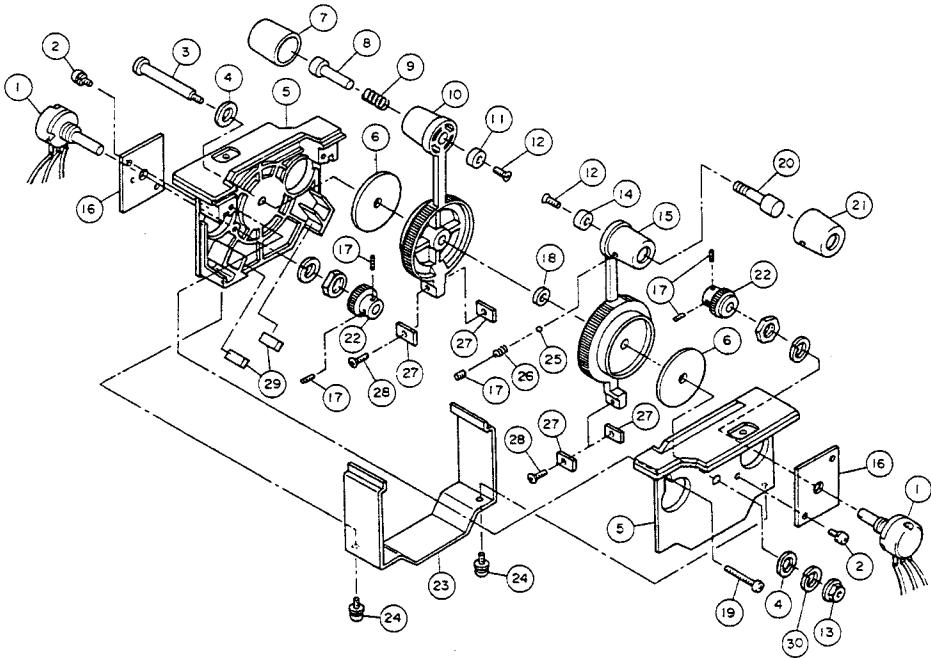
1-2 Diameter and Length of screw



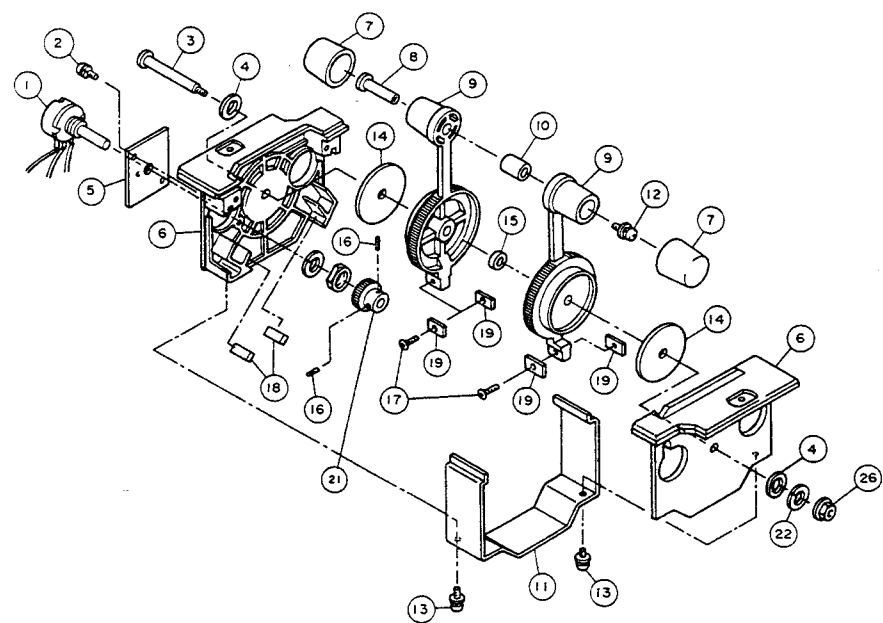
Surface treatment

| Symbol letter | Surface treatment |
|---------------|---|
| Z | Galvanization, dichromic acid treatment (MFZn2-C) |
| N | Nickel plating (MFN12, MFN11) |
| R | Chrome plating (MBCr2, MBCr1) |
| G | Silver plating (SP4) |
| W | Nichrome platings |
| P | Phosphite treatment |
| B | Bronze plating |
| M | Black coloring after galvanization |
| A | Red coloring after galvanization |
| C | Blue coloring after galvanization |
| T | Green coloring after galvanization |
| V | Violet coloring after galvanization |
| F | Iron with black coloring |

6.1 MIX/SE LEVER ASS'Y

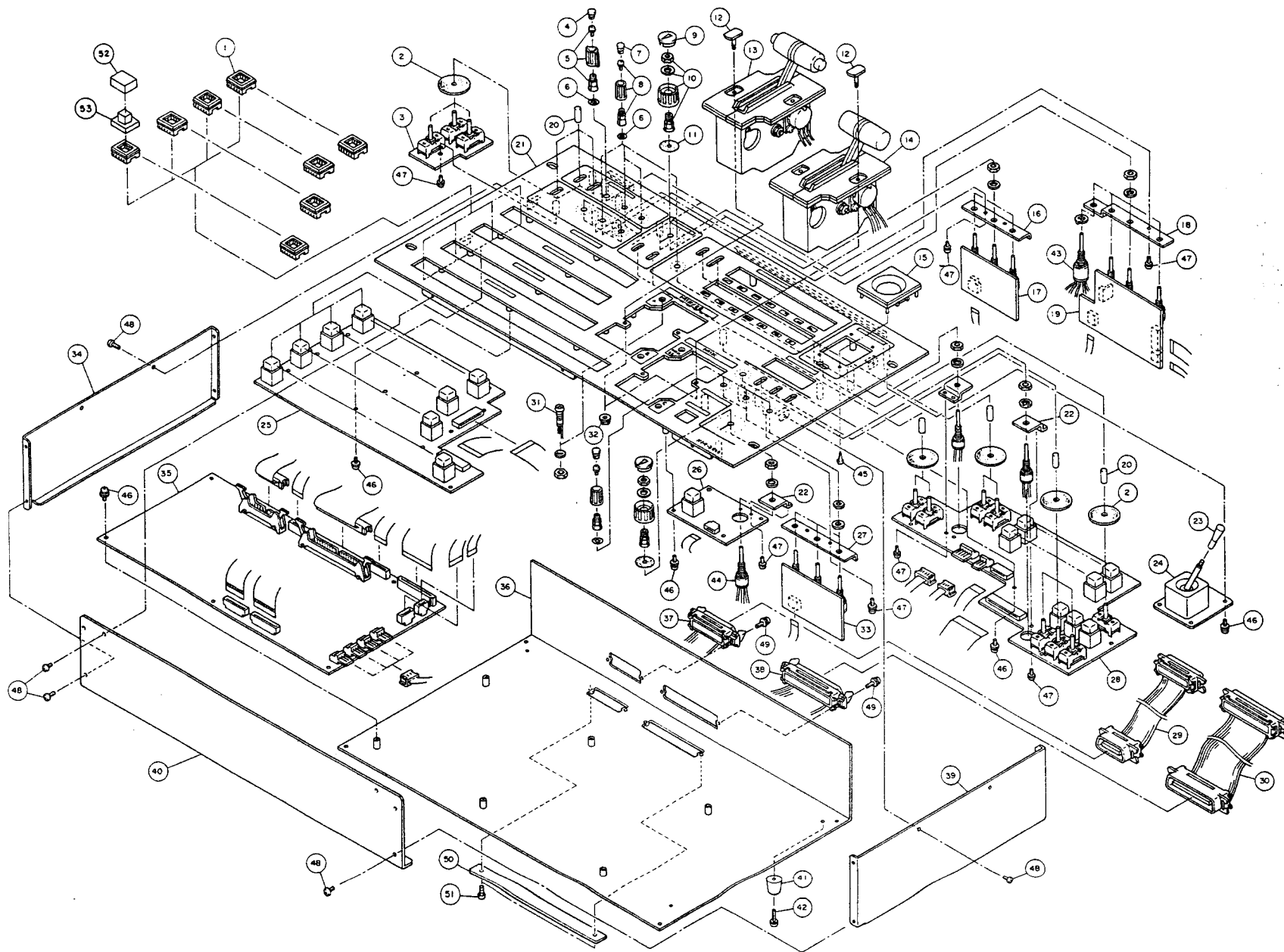


| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-------------|--------------------------|
| 1 | SCV0289-001 | V. Resistor | 1 k Ω B M3 x 6 |
| 2 | SPSP3006Z | Screw | |
| 3 | SC40708-001 | Spindle | |
| 4 | WNS6000N | Washer | |
| 5 | SC20087-001 | Case | |
| 6 | SC40719-001 | F. Spacer | |
| 7 | SC40711-001 | Knob-1 | |
| 8 | SC40709-001 | Button-1 | |
| 9 | SC40718-001 | Spring-2 | |
| 10 | SC30321-001 | Lever-1 | |
| 11 | SC40715-001 | Guide | M3 x 8 |
| 12 | SSSP3008N | Screw | |
| 13 | NFZ5000Z | F. Nut | |
| 14 | SC40715-002 | Guide | |
| 15 | SC30322-001 | Lever-2 | |
| 16 | SC40721-001 | Bracket | |
| 17 | YFS3003F | Set Screw | |
| 18 | SC40716-002 | Spacer | |
| 19 | SPSP3016N | Screw | |
| 20 | SC40710-001 | Button-2 | |
| 21 | SC40712-001 | Knob-2 | M3 x 6 |
| 22 | SC40713-001 | Gear | |
| 23 | SC30327-001 | Cover | |
| 24 | LPSP3006Z | Screw | |
| 25 | SC40465-024 | Steel Ball | |
| 26 | SC40717-001 | Spring-1 | M2.6 x 5 Glued to ⑤ |
| 27 | SC40720-001 | M. Base | |
| 28 | SSSP2605N | Screw | |
| 29 | SC40725-001 | M. Rubber | |
| 30 | WLS6000M | Washer | |



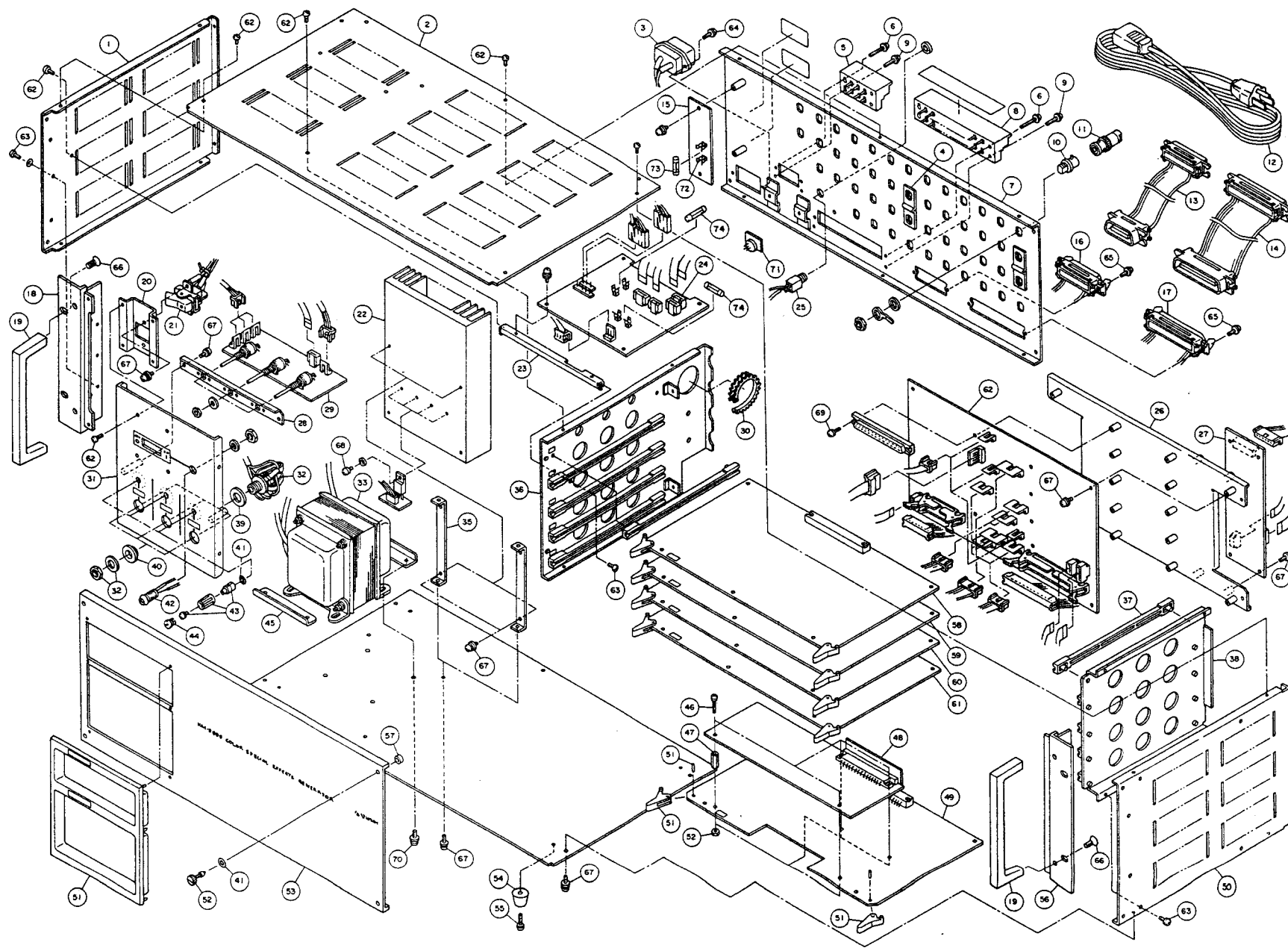
| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-------------|--------------------------|
| 1 | SCV0289-001 | V. Resistor | 1 k Ω B M3 x F |
| 2 | SPSP3006Z | Screw | |
| 3 | SC40708-001 | Spindle | |
| 4 | WNS6000N | Washer | |
| 5 | SC40721-001 | Bracket | |
| 6 | SC20087-001 | Case | Glued to ⑨ |
| 7 | SC40711-002 | Knob-1 | |
| 8 | SC40727-001 | Shaft | |
| 9 | SC30321-001 | Lever-1 | |
| 10 | SC40728-001 | Sleeve | |
| 11 | SC30327-001 | Cover | |
| 12 | DPSP3006Z | Screw | |
| 13 | LPSP3006Z | " | |
| 14 | SC40719-001 | F. Spacer | |
| 15 | SC40716-002 | Spacer | |
| 16 | YFS3003F | Set Screw | Glued to ⑥ |
| 17 | SSSP2605N | Screw | |
| 18 | SC40725-001 | M. Rubber | |
| 19 | SC40720-001 | M. Base | |
| 20 | NFZ5000Z | F. Nut | |
| 21 | SC40713-001 | Gear | |
| 22 | WLS6000M | Washer | |

6.3 CONTROL UNIT ASS'Y



| Symbol No. | Part No. | Part Name | Description |
|------------|----------------|------------------|--|
| △ 1 | SC40695-001 | SW. Escutcheon | Glued |
| 2 | SC40392-001 | Spacer | |
| 3 | — | SB-3 Board Ass'y | |
| 4 | SC40665-021 | Knob Cap | |
| 5 | SC40684-021 | Knob | |
| 6 | SC40724-001 | Spacer | |
| 7 | SC40685-021 | Knob Cap | |
| 8 | SC40683-021 | Knob | |
| 9 | SC40687-021 | Knob Cap | |
| 10 | SC40686-021 | Knob | |
| 11 | SC40724-002 | Spacer | |
| 12 | SC40741-001 | Screw | |
| 13 | — | Fader 1 Ass'y | |
| 14 | — | Fader 2 Ass'y | |
| △ 15 | SC40693-001 | P. Escutcheon | |
| 16 | SC40690-001 | Bracket (2) | |
| 17 | — | BCC Board Ass'y | |
| 18 | SC40692-001 | Bracket (1) | |
| 19 | — | CK Board Ass'y | |
| 20 | SCV0295-001 | Lever | |
| 21 | SC10029-022 | Control Panel | |
| 22 | SC40689-001 | VR Bracket | |
| 23 | SC40694-001 | C. Knob | |
| 24 | SCV0293-001 | Stick Control | |
| 25 | — | SB-1 Board Ass'y | |
| 26 | — | AU Board Ass'y | |
| 27 | SC40691-001 | Bracket (3) | |
| 28 | — | SB-2 Board Ass'y | |
| 29 | SC30301-24-050 | F.C. Ass'y | |
| 30 | SC30301-50-050 | " | |
| △ 31 | SDB-2048-RD | L.E.D. | |
| 32 | NFZ4000Z | Nut | |
| 33 | — | DS Board Ass'y | |
| 34 | SC30307-001 | Side Cover (L) | |
| 35 | — | LB Board Ass'y | |
| 36 | SC30309-001 | Chassis | |
| 37 | SC30302-24-16 | F.C. Ass'y | |
| 38 | SC30302-50-16 | " | |
| 39 | SC30308-001 | Side Cover (R) | |
| 40 | SC30310-001 | Front Cover | |
| △ 41 | QZF1510-001 | Rubber Foot | M3 x 10 |
| 42 | LPSP3010Z | Screw | |
| 43 | SCV0294-001 | Rotary Switch | |
| 44 | SCV0291-001 | V. Resistor | |
| 45 | SBSB2606Z | Screw | |
| 46 | DPSP3006Z | " | |
| 47 | LPSP3006Z | " | |
| 48 | SDSP3006M | " | |
| 49 | LPSP2608Z | " | |
| 50 | SC40877-001 | Plate Cover | |
| 51 | SDSP2606M | Screw | WHITE (SW Ass'y SCV0292-100) RED (" " -110) BLUE (" " -120) GREEN (" " -130) ORANGE (" " -140) YELLOW (" " -150) |
| △ 52 | SCV0326-100 | Cap | |
| △ | " -110 | " | |
| △ | " -120 | " | |
| △ | " -130 | " | |
| △ | " -140 | " | |
| △ | " -150 | " | |
| △ 53 | SCV0302-100 | Lamp Ass'y | |

6.4 MAIN UNIT ASS'Y



| Symbol No. | Part No. | Part Name | Description |
|------------|----------------|------------------|--|
| 1 | SC30321-001 | Side Cover (L) | NTSC (120 V line) PAL (220 V/240 V line) |
| 2 | SC30311-001 | Top Cover | |
| △ 3 | QMC0336-001 | AC Socket | |
| △ 4 | QMC0336-002-BS | " | |
| 4 | SC40757-001 | Bracket | |
| △ 5 | SS43159-206 | Terminal Board | -002 : NTSC -003 : PAL |
| 6 | DPSP3025Z | Ass'y Screw | |
| 7 | SC20084-002 | Rear Panel | |
| " -003 | " | " | |
| △ 8 | SS43159-218 | Terminal Board | |
| 9 | DPSP3014Z | Ass'y Screw | U EG EK EA |
| 10 | SCV0306-001 | BNC R | |
| 11 | SCV0286-001 | BNC T. Plug | |
| △ 12 | QMP9003-016 | Power Cord | |
| △ 13 | GP32473-5M0 | " | |
| △ 14 | GP32474-5M0-BS | " | F.C. Ass'y " |
| △ 15 | QMP2468-500 | " | |
| △ 16 | SC30301-24-050 | " | |
| △ 17 | SC30301-50-050 | " | |
| 18 | — | FU Board Ass'y | |
| △ 19 | SC30302-24-23 | F.C. Ass'y | F. Edge (L) Handle SW. Bracket |
| △ 20 | SC30302-50-16 | " | |
| 18 | SC30318-001 | " | |
| 19 | SC40702-001 | " | |
| 20 | SC40700-001 | " | |
| △ 21 | SCV0204-001-BS | Power Switch | PAL NTSC (TV-3) |
| △ 22 | GP42873-011 | " | |
| 22 | SCV0299-011 | Heat Sink | |
| 23 | SC40698-001 | B. Bracket | |
| △ 24 | — | PS Board Ass'y | |
| △ 25 | QMS3501-013 | Jack Ass'y | B. Panel TL Board Ass'y VR Bracket IT Board Ass'y Cat Grommets |
| 26 | SC30314-001 | " | |
| △ 27 | — | " | |
| 28 | SC40701-001 | " | |
| 29 | — | " | |
| △ 30 | SS42497 | " | Sub Panel Incom. Jack Power Trans. " |
| 31 | SC30320-001 | " | |
| 32 | GP43198-001 | " | |
| △ 33 | SCV0297-001 | " | |
| △ 34 | — | " | |
| 35 | SC40697-001 | H. Bracket | NTSC (120 V line) PAL 220 V/240 V line) |
| 36 | SC30316-001 | Rail Bracket (L) | |
| △ 37 | SCV0303-001 | Rail | |
| 38 | SC30315-001 | Rail Bracket (R) | |
| △ 39 | SC40518-001 | Spacer | |
| △ 40 | SC40517-001 | Base | Spacer L.E.D. Knob Knob Cap T. Bracket |
| 41 | SC40724-001 | " | |
| △ 42 | SDB-2048-RD | " | |
| 43 | SC40683-021 | " | |
| 44 | SC40685-021 | " | |
| 45 | SC40699-001 | " | Spacer " |
| 46 | — | " | |
| 47 | SC40723-001 | " | |
| 48 | — | " | |
| 49 | — | " | |
| 50 | SC30313-001 | Side Cover (R) | |

SECTION 7 CHARTS AND DIAGRAMS

| Symbol No. | Part No. | Part Name | Description |
|------------|----------------|------------------|-------------|
| △ 51 | SC20086-001 | F. Escutcheon | |
| 52 | SC40703-001 | Screw | |
| 53 | SC20085-002 | Front Panel | |
| △ 54 | QZF1510-001 | Rubber Foot | |
| 55 | LPSP3010Z | Ass'y Screw | |
| 56 | SC30319-001 | F. Edge (R) | |
| 57 | SC40756-001 | Stopper | |
| 58 | — | — | |
| 59 | — | — | |
| 60 | — | — | |
| 61 | — | — | |
| 62 | SDSP3006M | Screw | |
| 63 | SDSP3008M | " | |
| 64 | DPSP3010Z | " | |
| 65 | LPSP2608Z | " | |
| 66 | SSSP5012N | " | |
| 67 | DPSP3006M | " | |
| 68 | LPSP3008Z | " | |
| 69 | LPSP2610Z | " | |
| 70 | DPSP4008Z | " | |
| △ 71 | QSR0074-003-BS | Voltage Selector | PAL only |
| △ 72 | E48965-002 | Fuse Clip | |
| △ 73 | QMF51U1-1R6 | Fuse | NTSC |
| △ | QMF51A2-R80 | " | PAL |
| △ 74 | QMF51U1-1R6 | " | NTSC |
| △ | QMF51A2-1R6 | " | PAL |

7.1 KEY TO ABBREVIATIONS

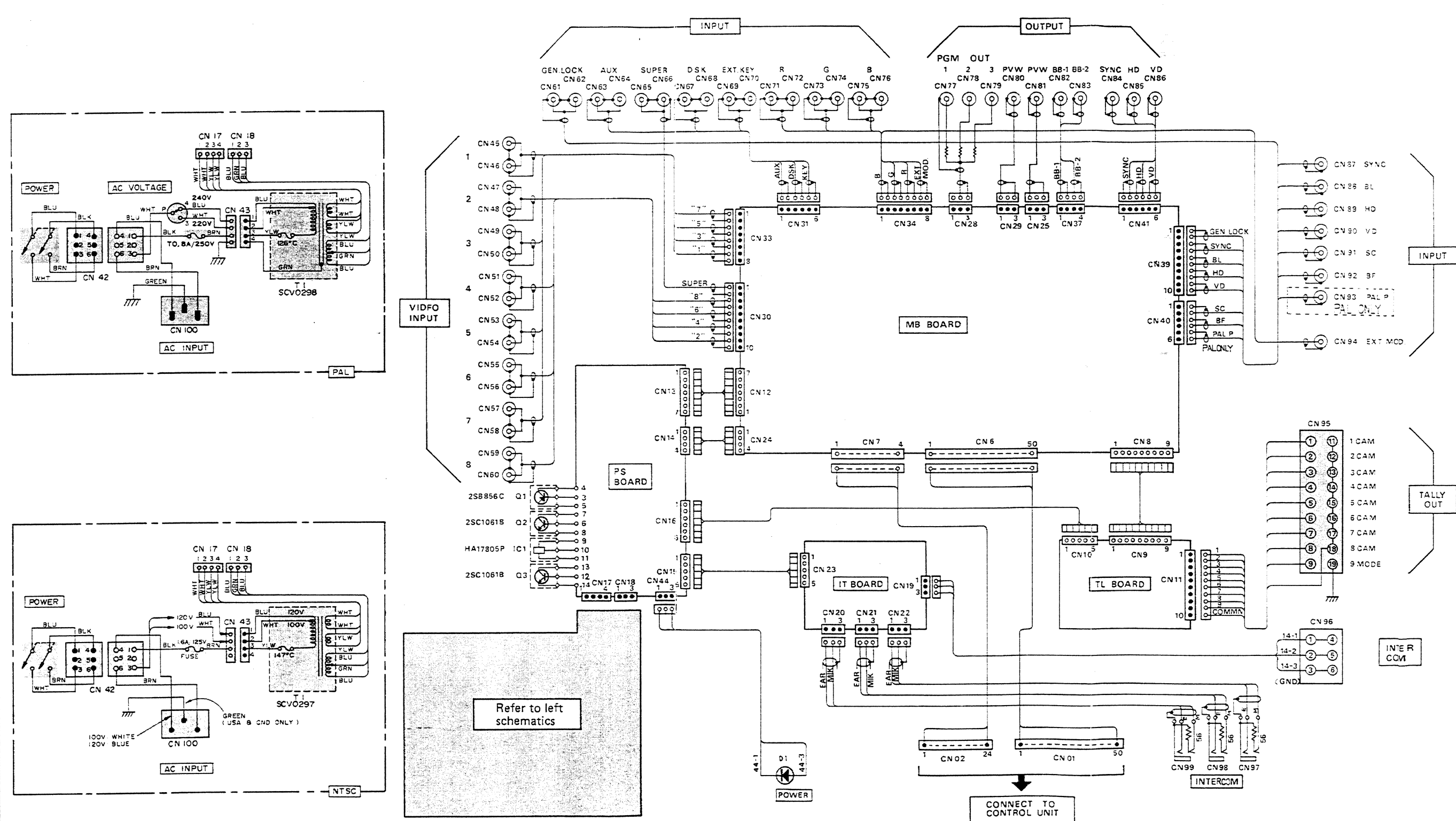
| | | |
|---|-------------|------------------------------|
| A | AMP | : Amplifier |
| C | COMP | : Comparator |
| D | D. AMP | : Distribute Amplifier |
| | DET | : Detector |
| | DISCRI | : Discriminator |
| | DIV | : Divider |
| E | E. SW | : Electronic Switch |
| | EXT | : External mode |
| H | H. D | : Horizontal Drive |
| I | INT | : Internal mode |
| | INV | : Inverter |
| L | LIMIT | : Limiter |
| M | M. M | : Monostable Multivibrator |
| | MOD | : Modulator |
| | MGNO MULTI | : Monostable Multivibrator |
| R | REG | : Regulator |
| S | SEP | : Separator |
| | SH. TRIG | : Schumidt Trigger |
| | SSG | : Sync Signal Generator |
| | SYNC SEP | : Sync Separator |
| | SUB | : Subtract |
| T | THRHLD | : Threshold control |
| V | V. C. O | : Voltage Control Oscillator |
| | V. D | : Vertical Drive |
| | V. SYNC SEP | : Vertical Sync Separator |

NOTES:

1. Voltage in schematics are DC-measured with a digital voltmeter.
2. Replacing shaded () parts, be sure to use parts specified for safety purposes.

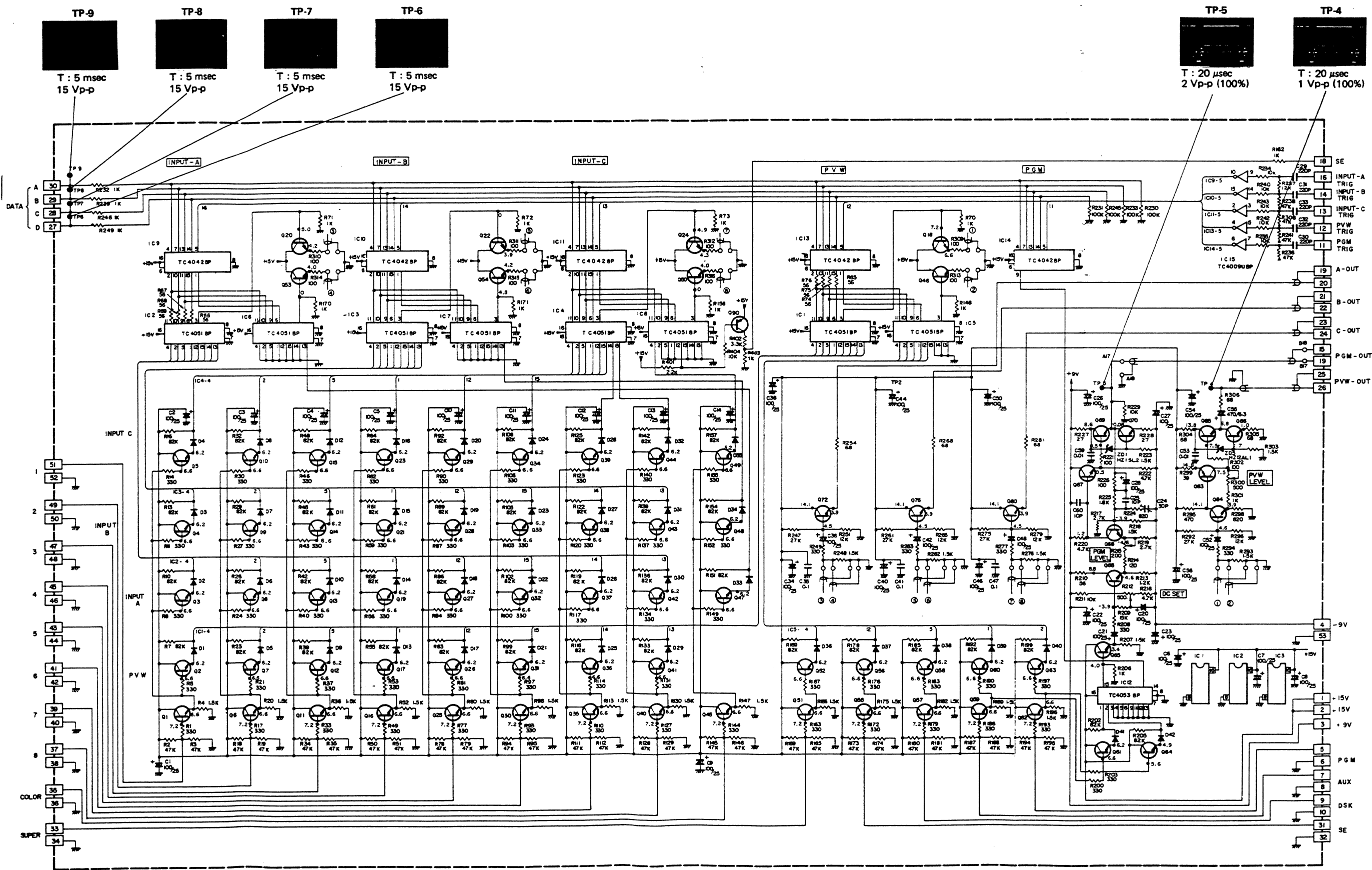
7.2 MAIN UNIT

7.2.1 MAIN UNIT OVERALL WIRING



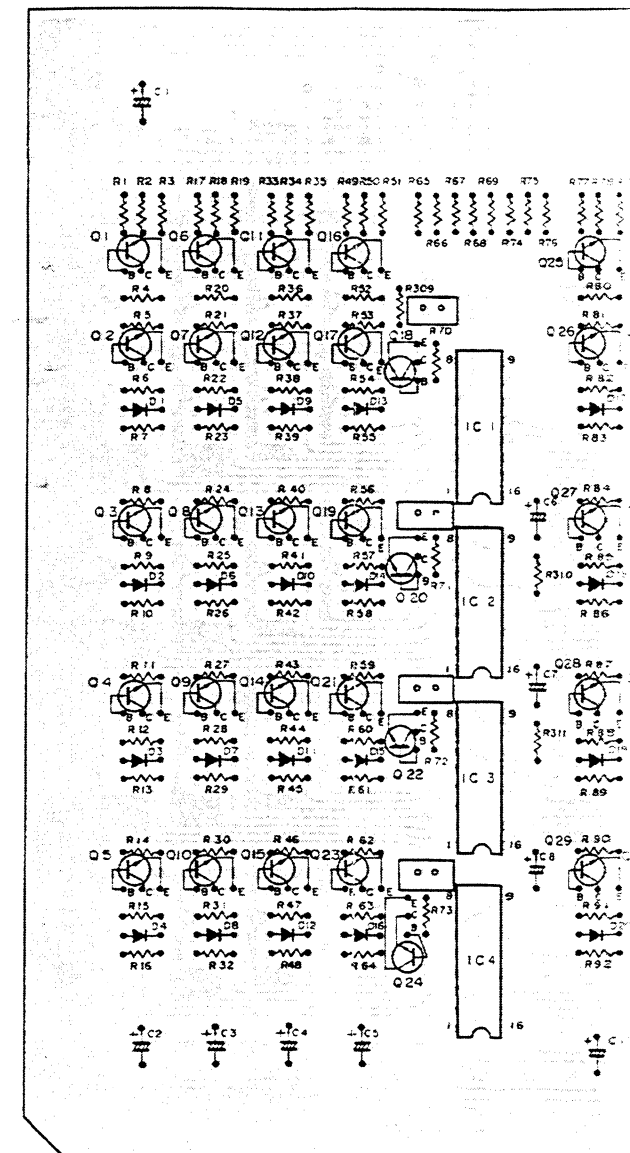
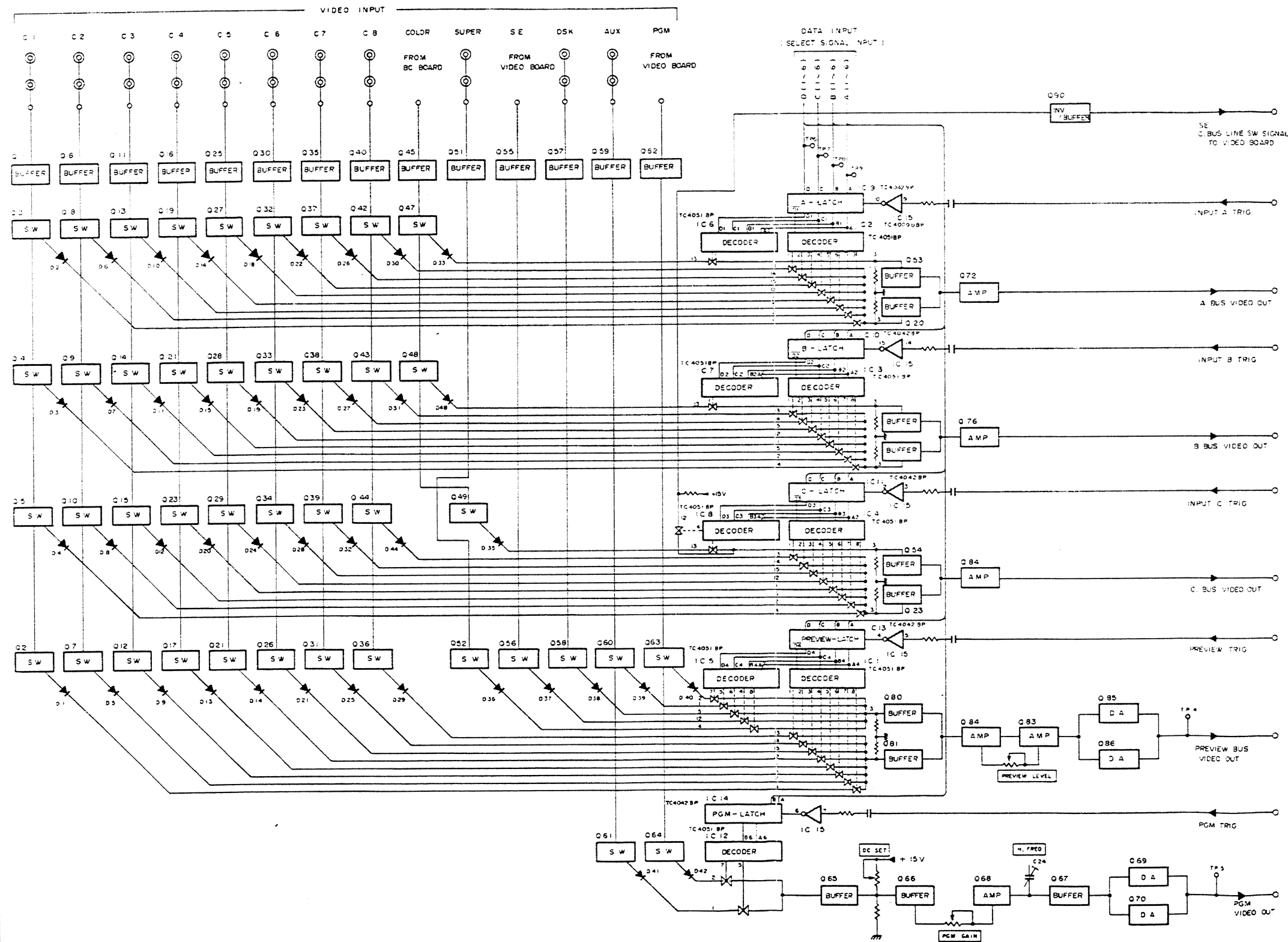
7.2.2 CROSS POINT BOARD SCHEMATIC DIAGRAM (CP BOARD)

NOTE:
INPUT ; BACK GROUND COLOR (100% SIGNAL)
A, B, C BUS-LINE ; SELECT TO "COLOR"

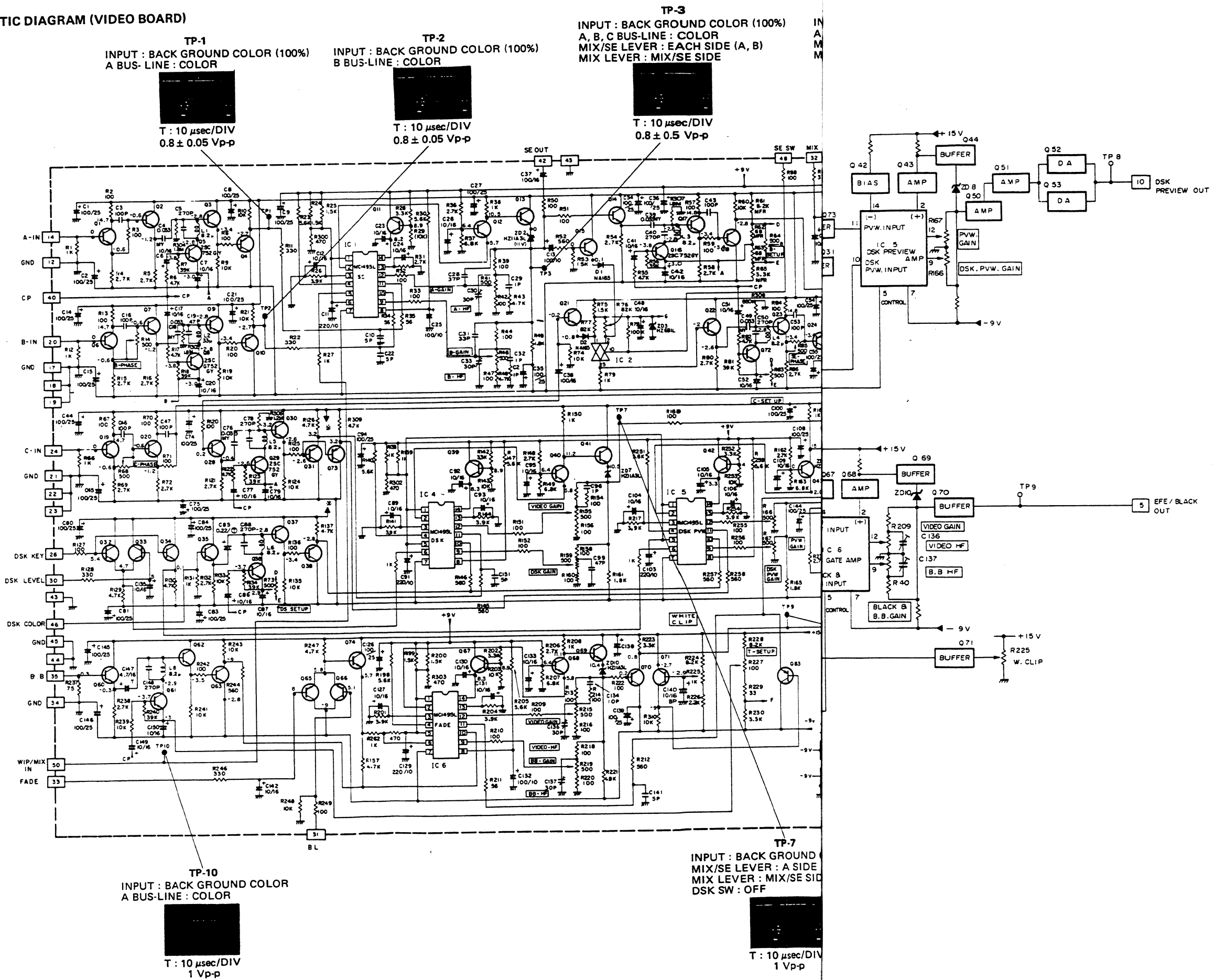


7.2.3 CP BOARD BLOCK DIAGRAM

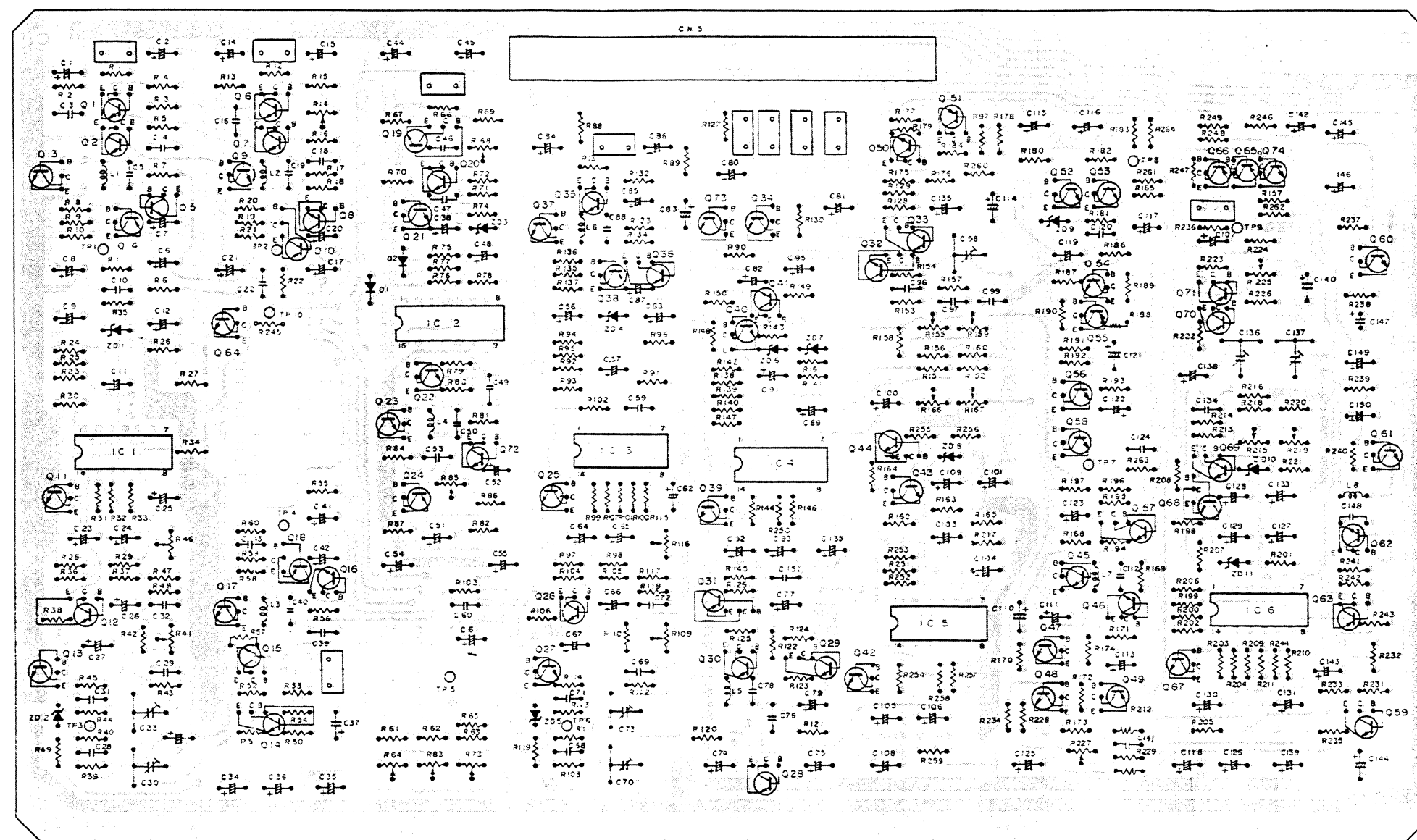
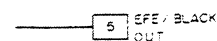
7.2.4 CP CIRCUIT BOARD
— SOLDERING SIDE —



7.2.5 VIDEO PROSESS BOARD SCHEMATIC DIAGRAM (VIDEO BOARD)



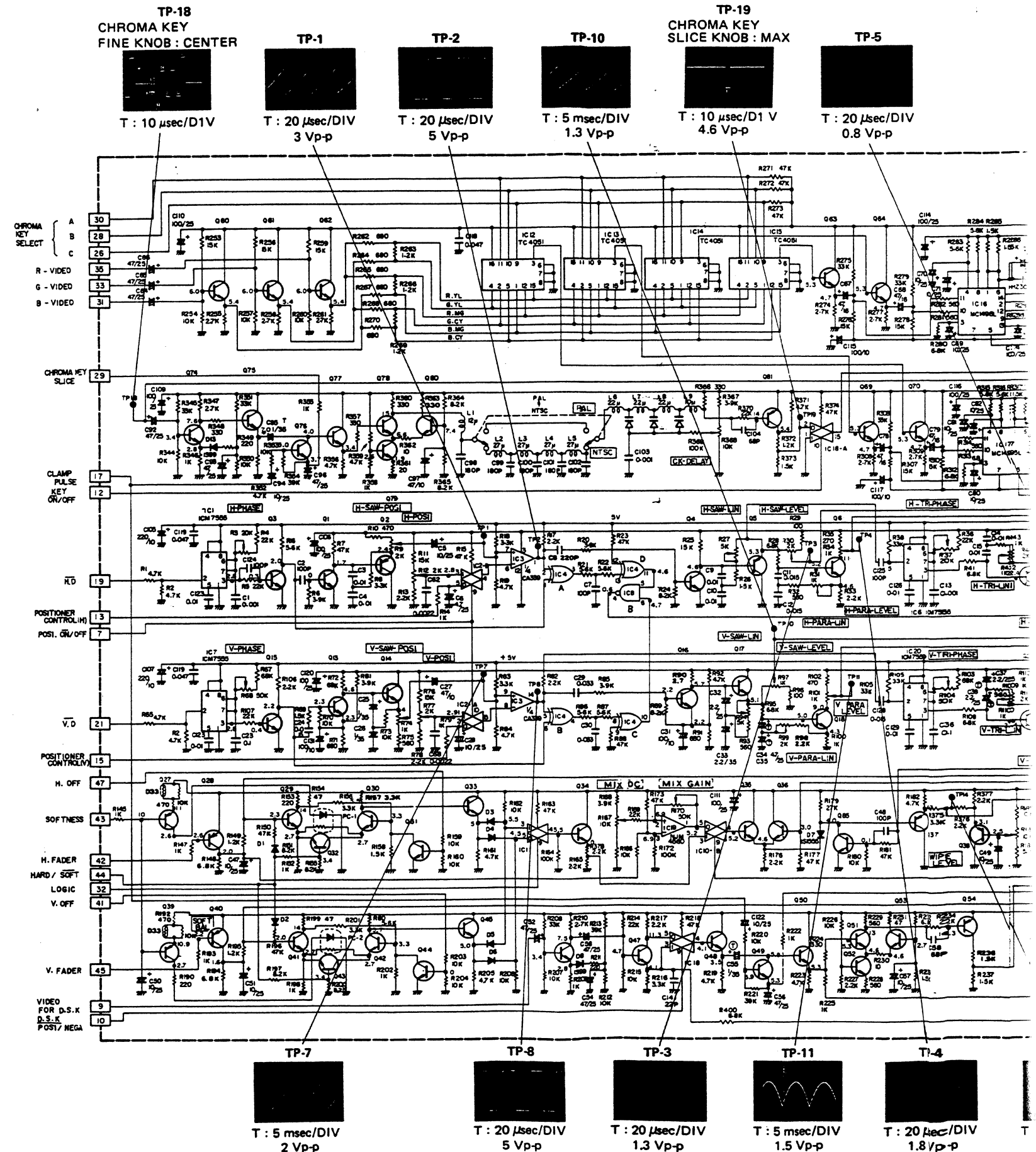
– SOLDERING SIDE –

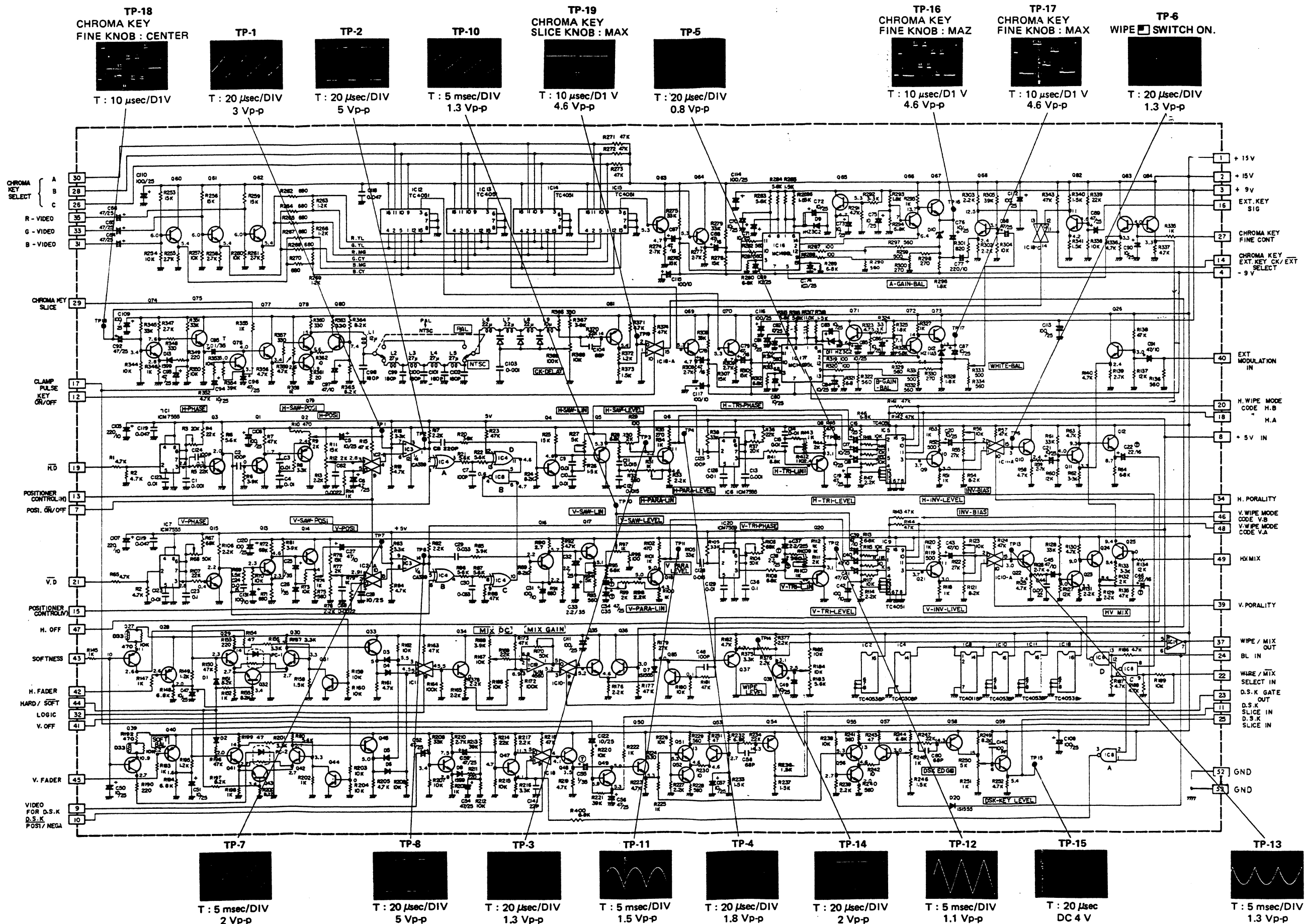


7.2.8 WAVE FORM PROCESS BOARD SCHEMATIC DIAGRAM (WFP BOARD)

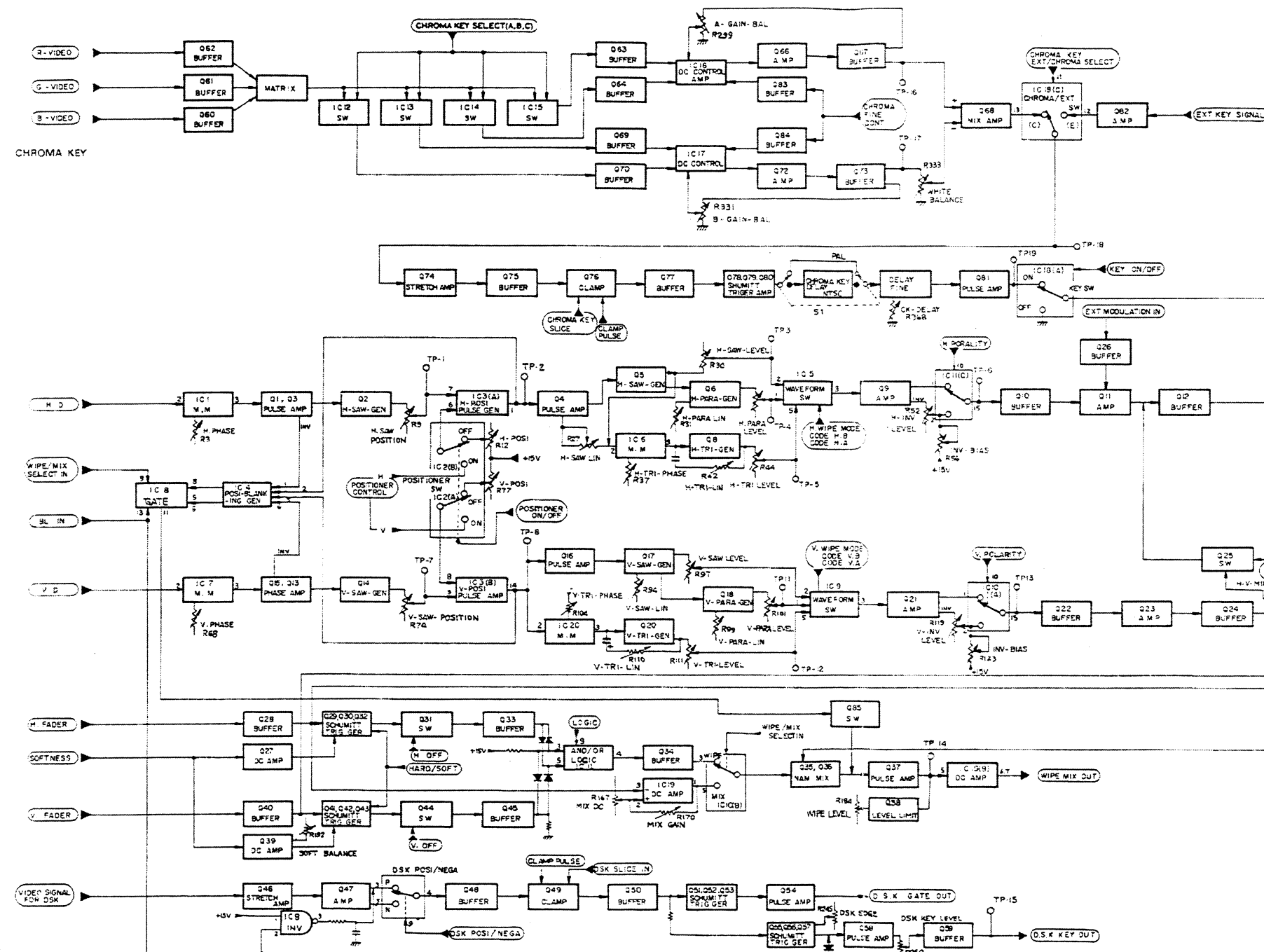
NOTES: (TP-16, 17, 18, 19)

- (1) INPUT : CHROMA KEY INPUT; R : G : B - COLOR BAR SIGNAL
- (2) CHROMA KEY SWITCH : ON
- (3) CHROMA EXT/CK SWITCH : CK
- (4) CHROMA COARSE KNOB : B (BLUE)



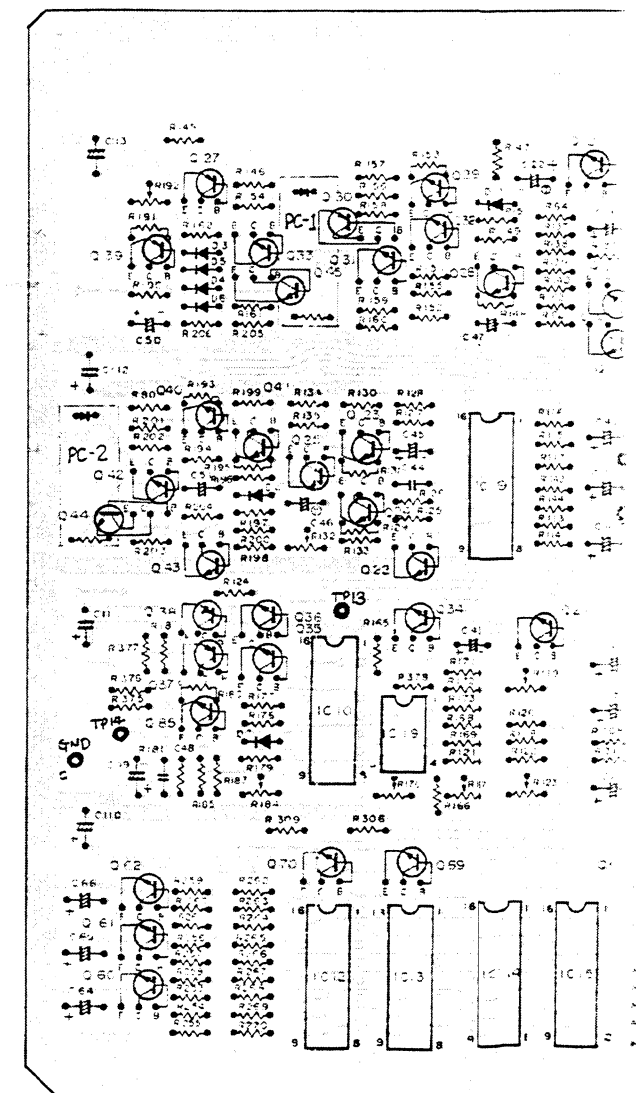


7.2.9 WFP BOARD BLOCK DIAGRAM



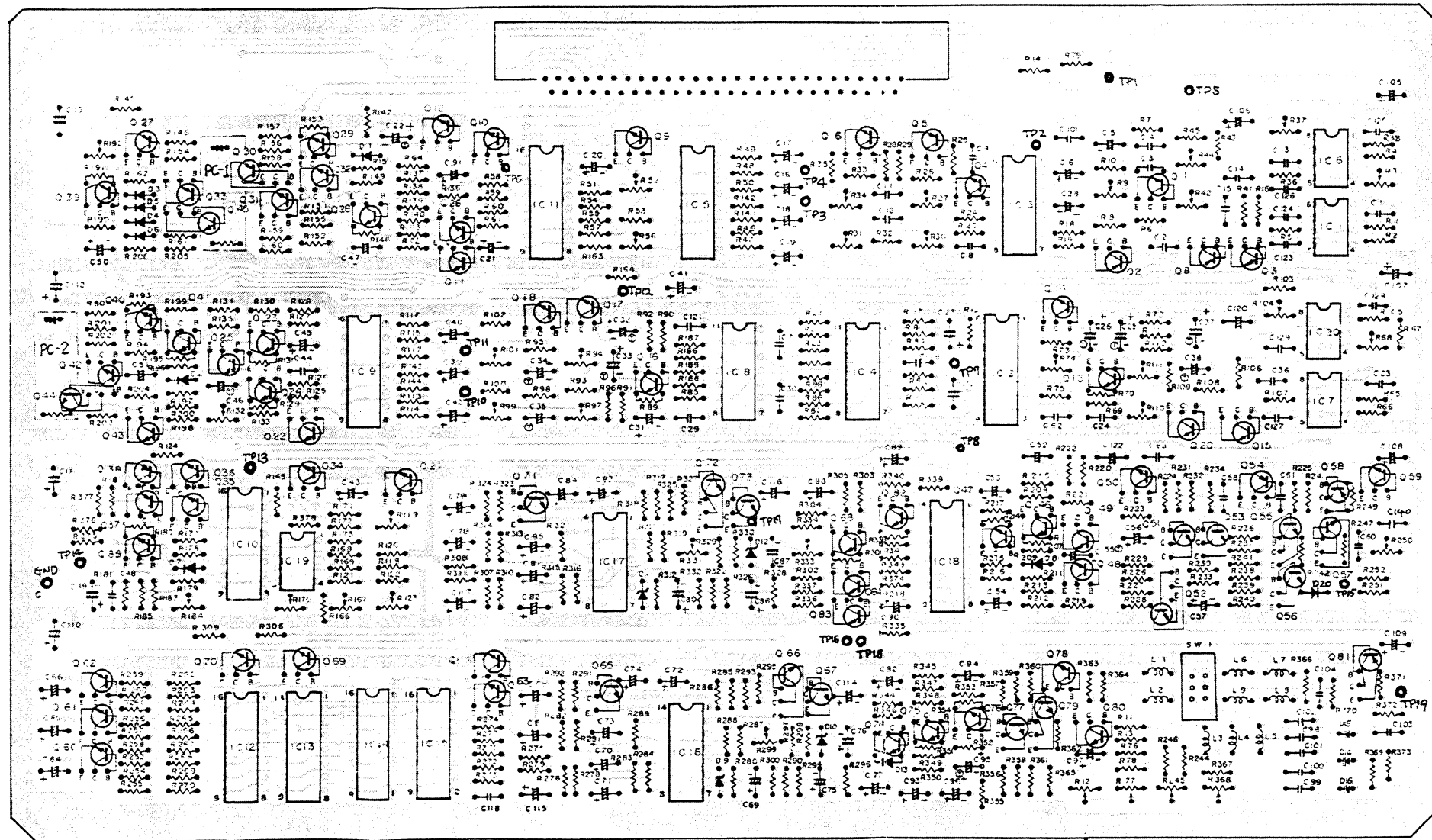
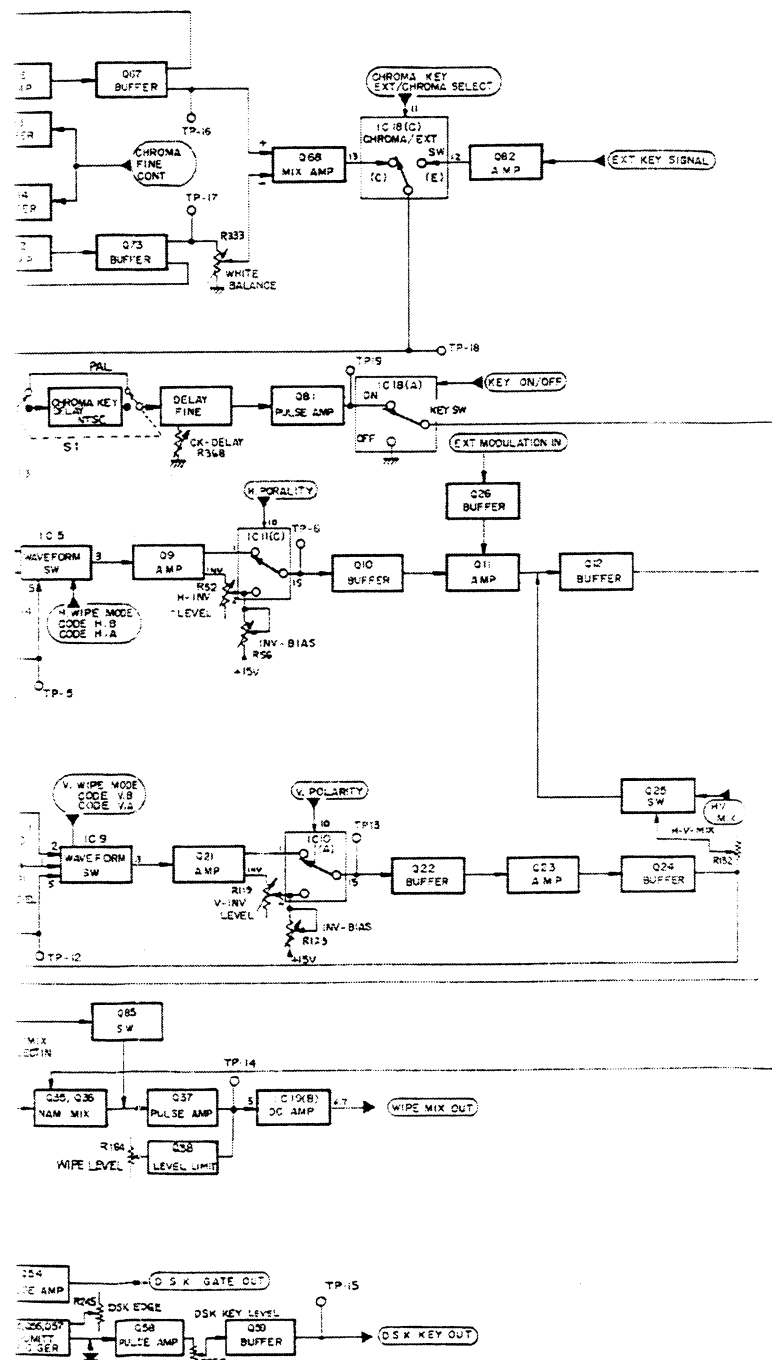
7.2.10 WFP CIRCUIT BOARD

- SOLDERING SIDE -



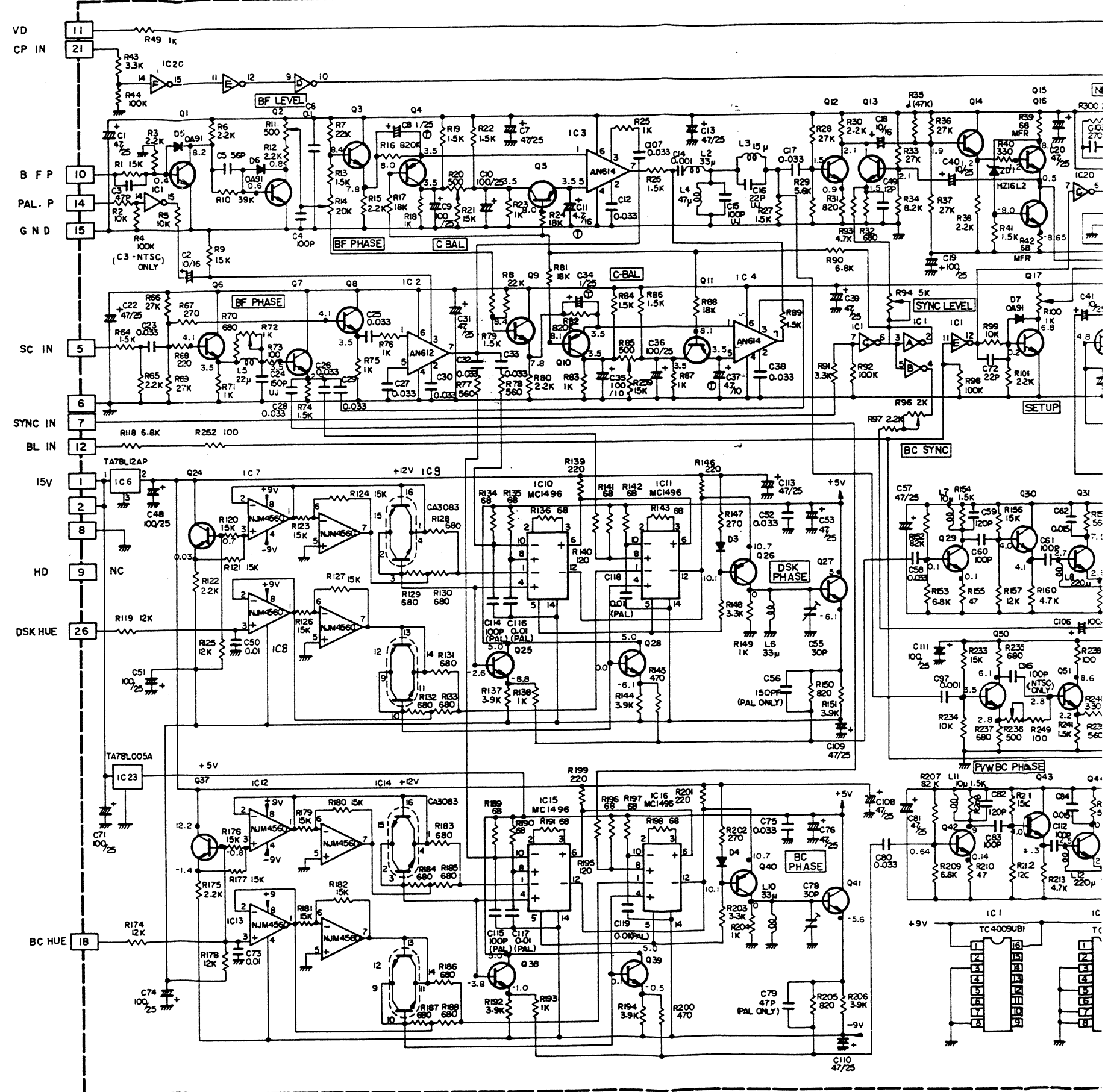
7.2.10 WFP CIRCUIT BOARD

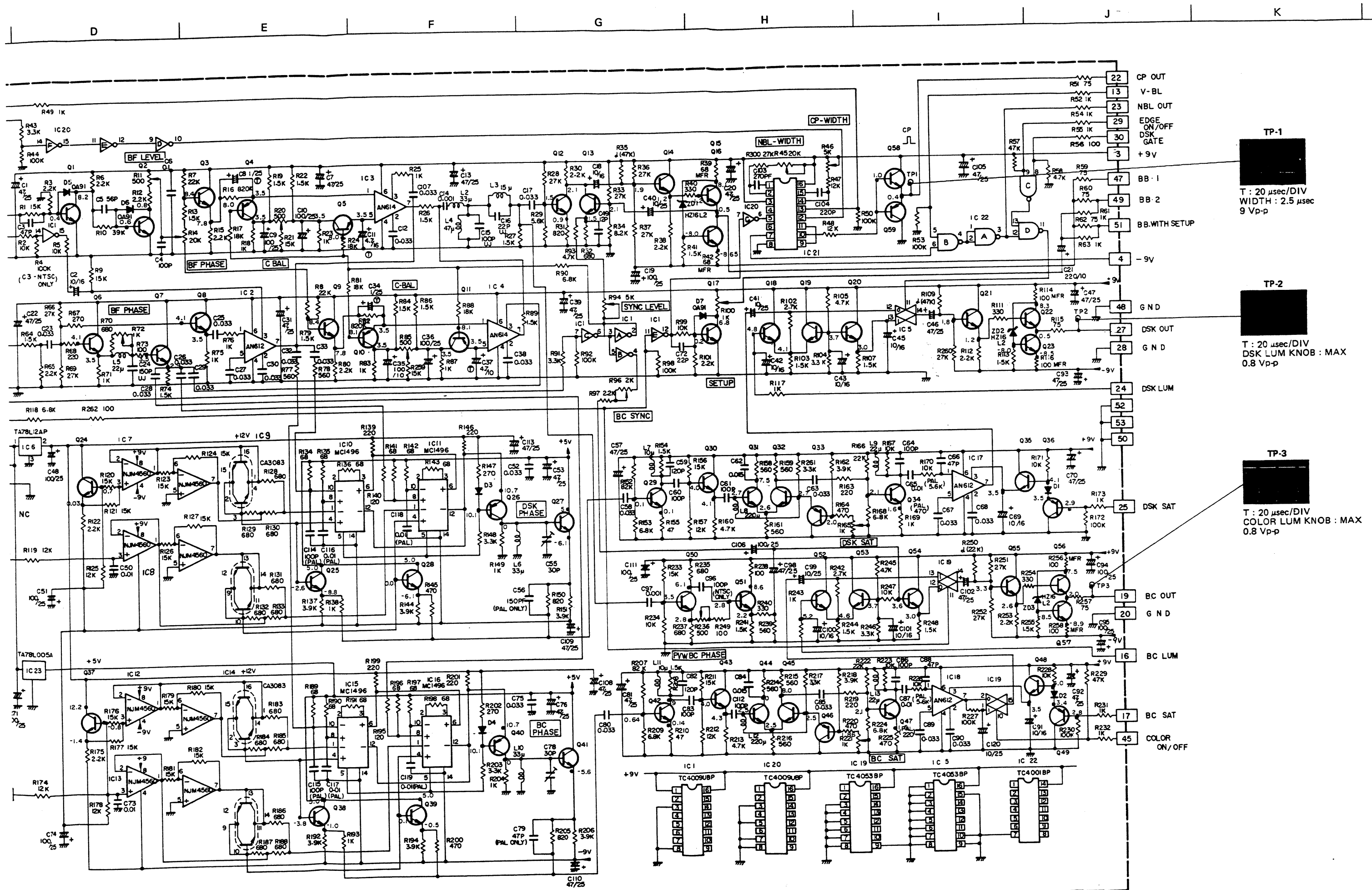
- SOLDERING SIDE -



7.2.11 BACK COLOUR BOARD SCHEMATIC DIAGRAM (BC BOARD)

| Parts No. | PAL | NTSC |
|-----------|-------|-------|
| C3 | — | 47P |
| C24 | 68P | 150P |
| C56 | 150P | — |
| C79 | 47P | — |
| C96 | — | 100P |
| C114 | 100P | — |
| C115 | 100P | — |
| C116 | 0.01 | — |
| C117 | 0.01 | — |
| R65 | — | 2.2 K |
| R66 | 6.8 K | 27 K |
| R67 | 10 | 270 |
| R68 | 2.2 K | 220 |
| R69 | 6.8 | 27 K |
| R73 | 1.2 K | 100 |
| R169 | 470 | 1 K |
| R170 | 5.6 K | 10 K |
| R225 | 220 | 470 |
| R226 | 5.6 K | 10 K |

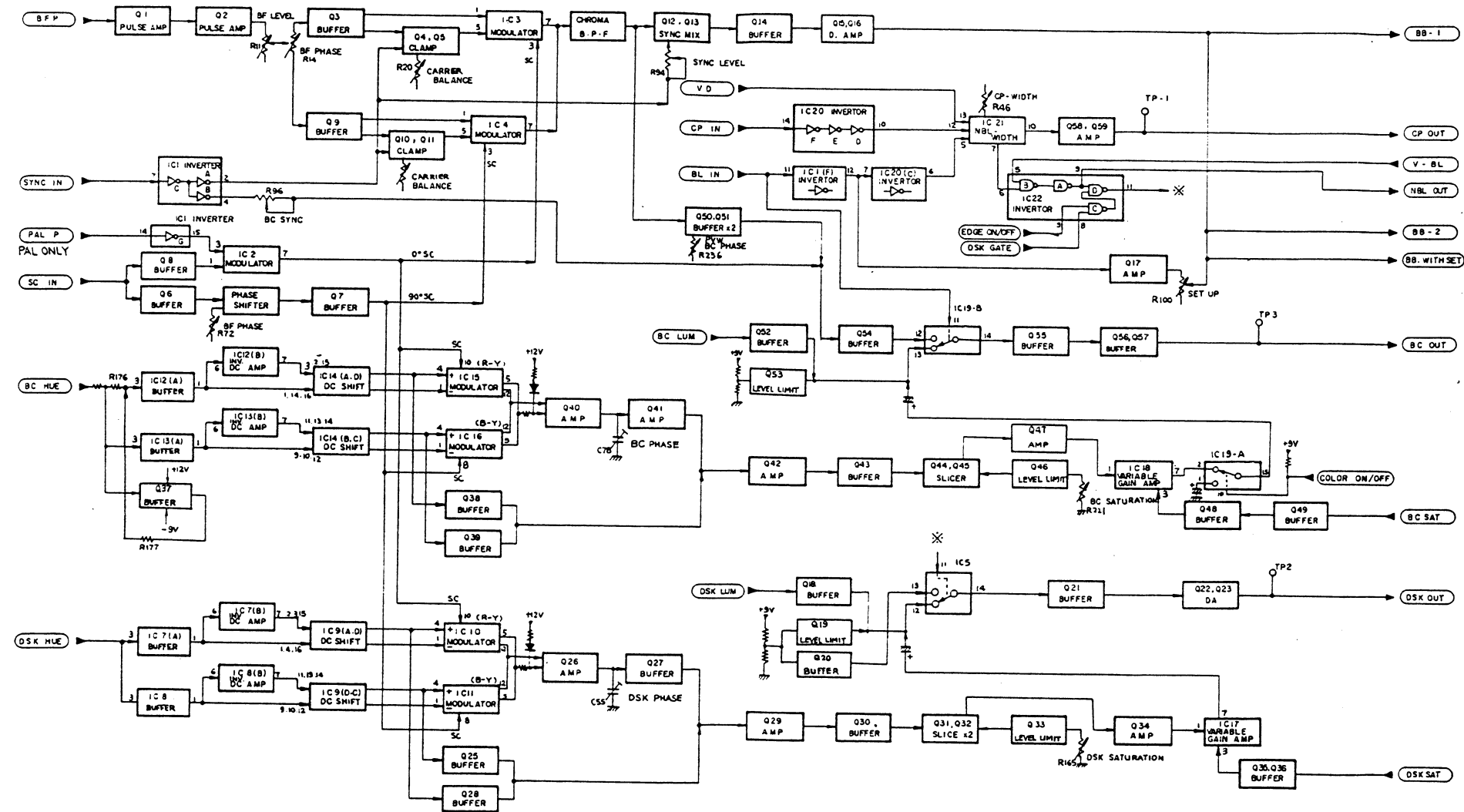




BC SCHEMATIC 7-10
(WFP BOARD)

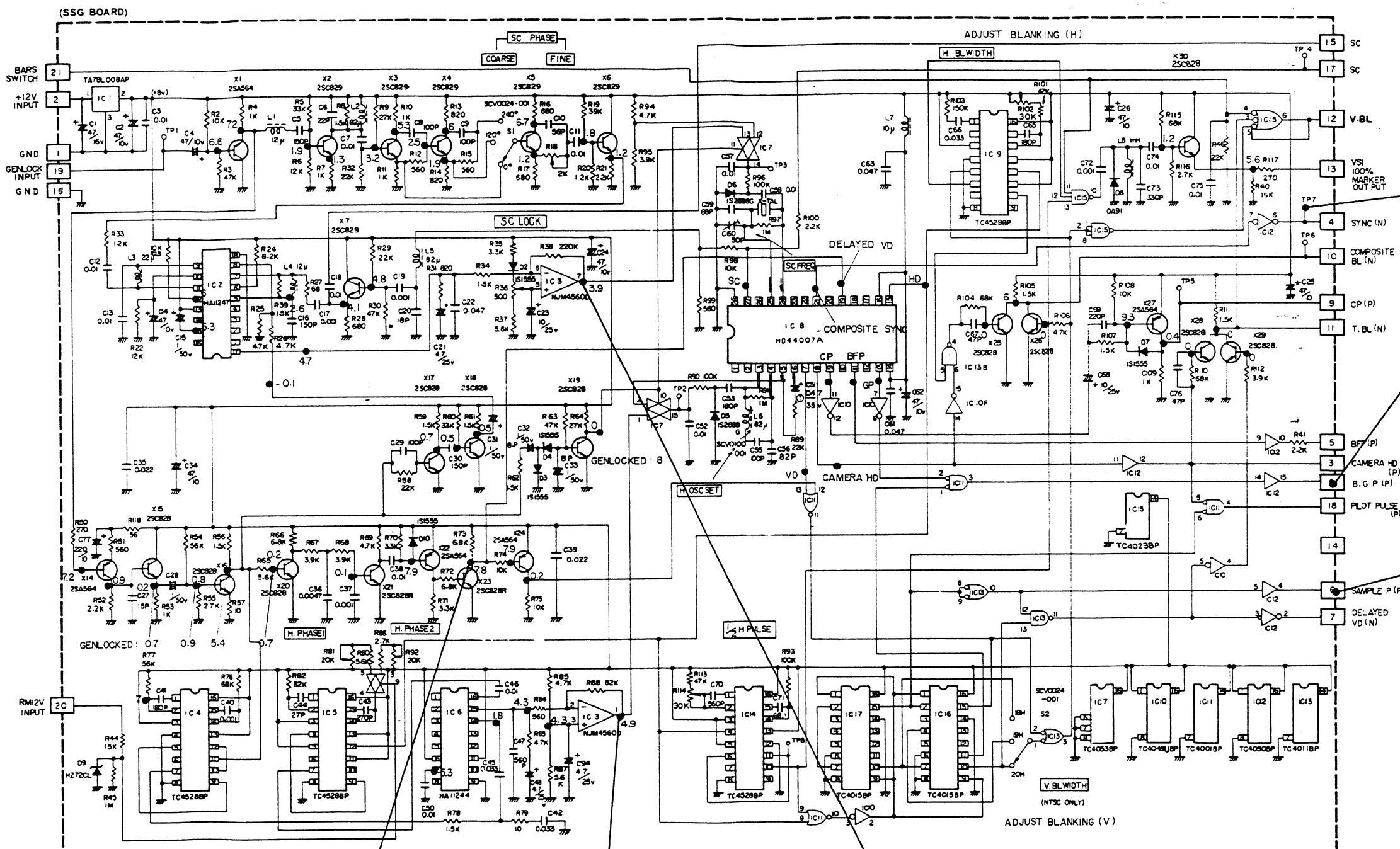
7-10 BC SCHEMATIC
(WFP BOARD)

7.2.12 BC BOARD BLOCK DIAGRAM

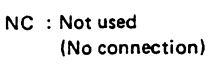


CN13

| | |
|----|--------------|
| 1 | GND |
| 2 | +12V |
| 3 | CAMH.D(P) |
| 4 | SYNC(N) |
| 5 | B.F.P(P) |
| 6 | SAMPLE(P) |
| 7 | DELAVID(N) |
| 8 | B.G.P(P) |
| 9 | CLAMP(P) |
| 10 | C.B.L(N) |
| 11 | TUBE BL(N) |
| 12 | VSI BL(P) |
| 13 | VSI MARKER |
| 14 | PAL P |
| 15 | SC1 |
| 16 | GEN LOCK |
| 17 | SC2 |
| 18 | PILOT P(P) |
| 19 | GEN LOCK SIG |
| 20 | RM 12V |
| 21 | BAR GEN |
| 22 | GND |



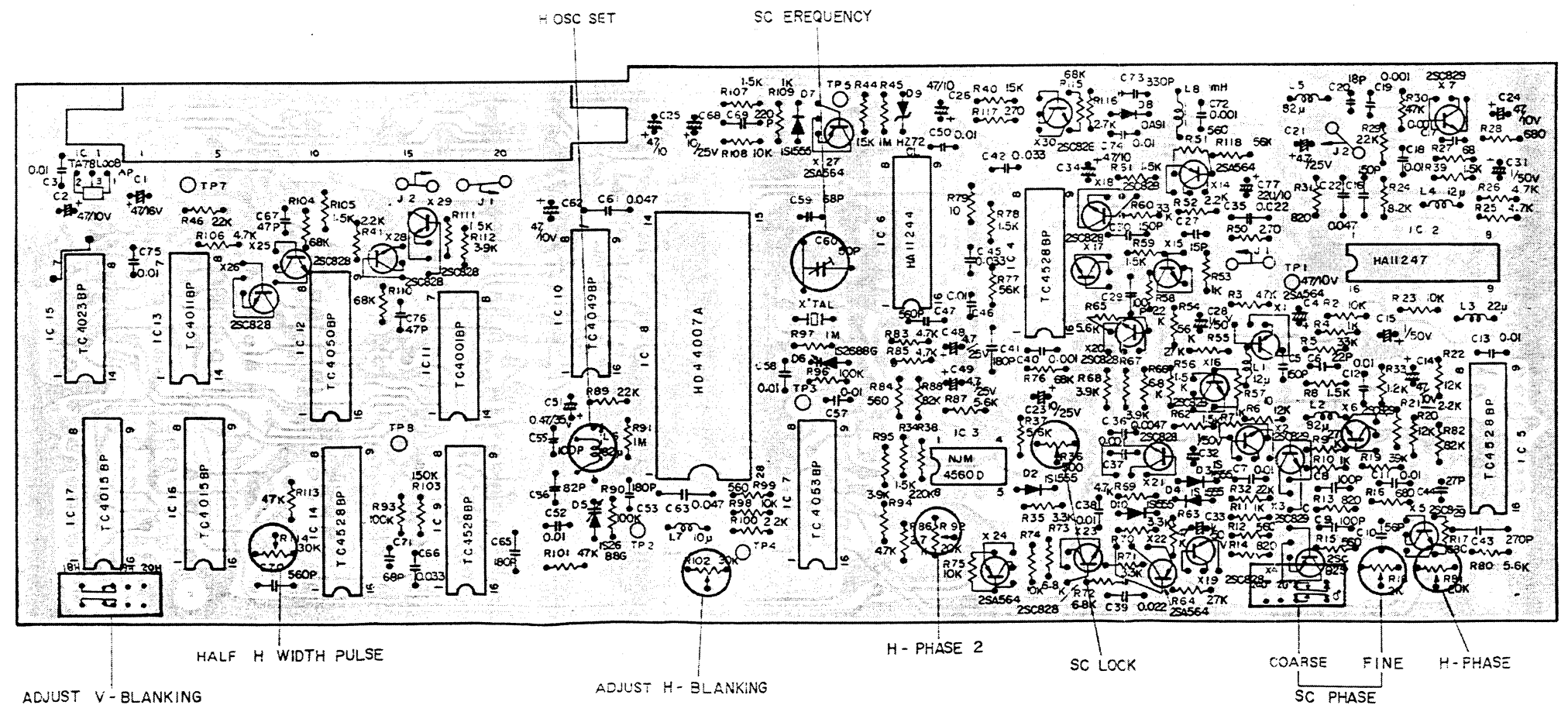
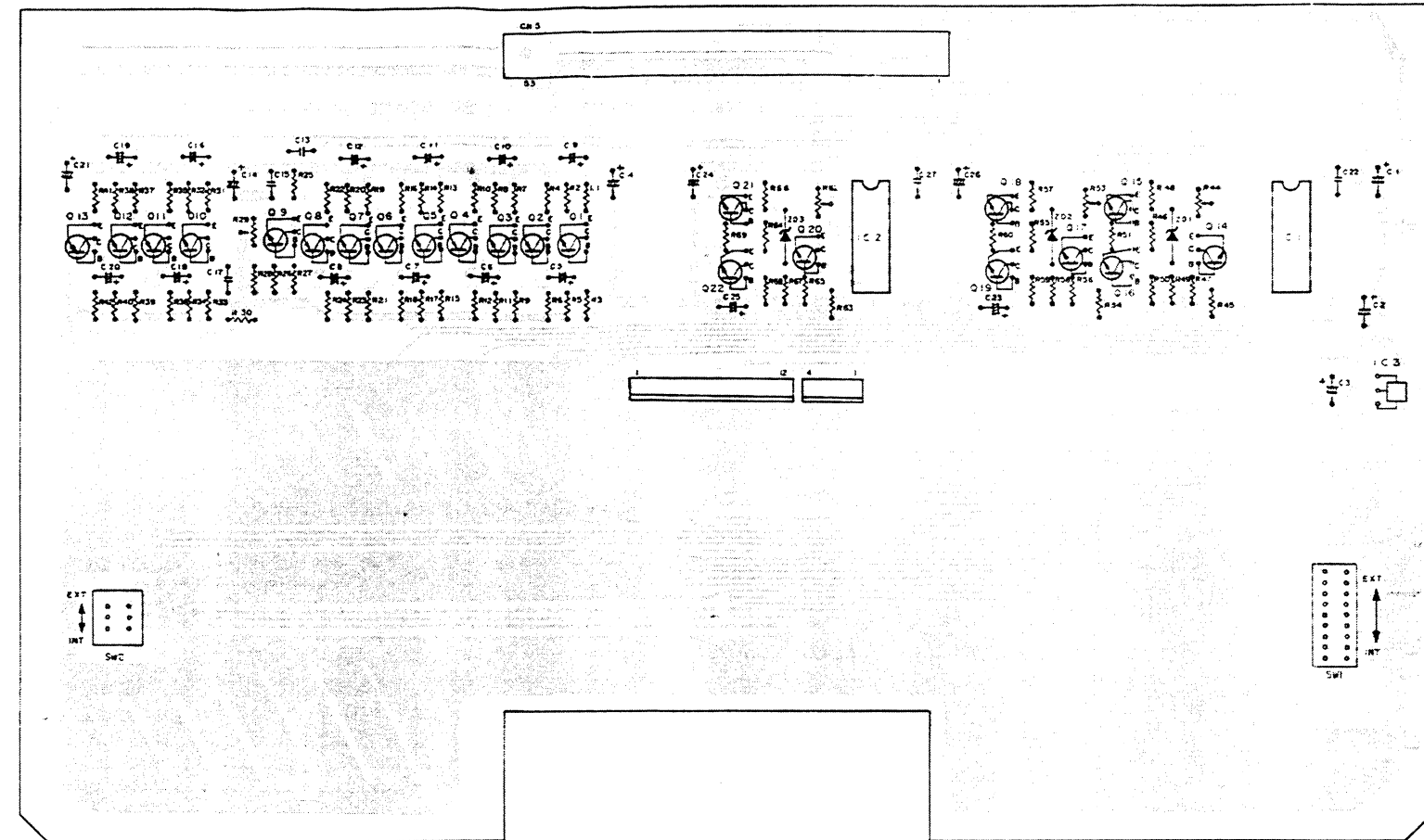
| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |



7.2.16 (1) SG CIRCUIT BOARD
- SOLDERING SIDE - (NTSC)

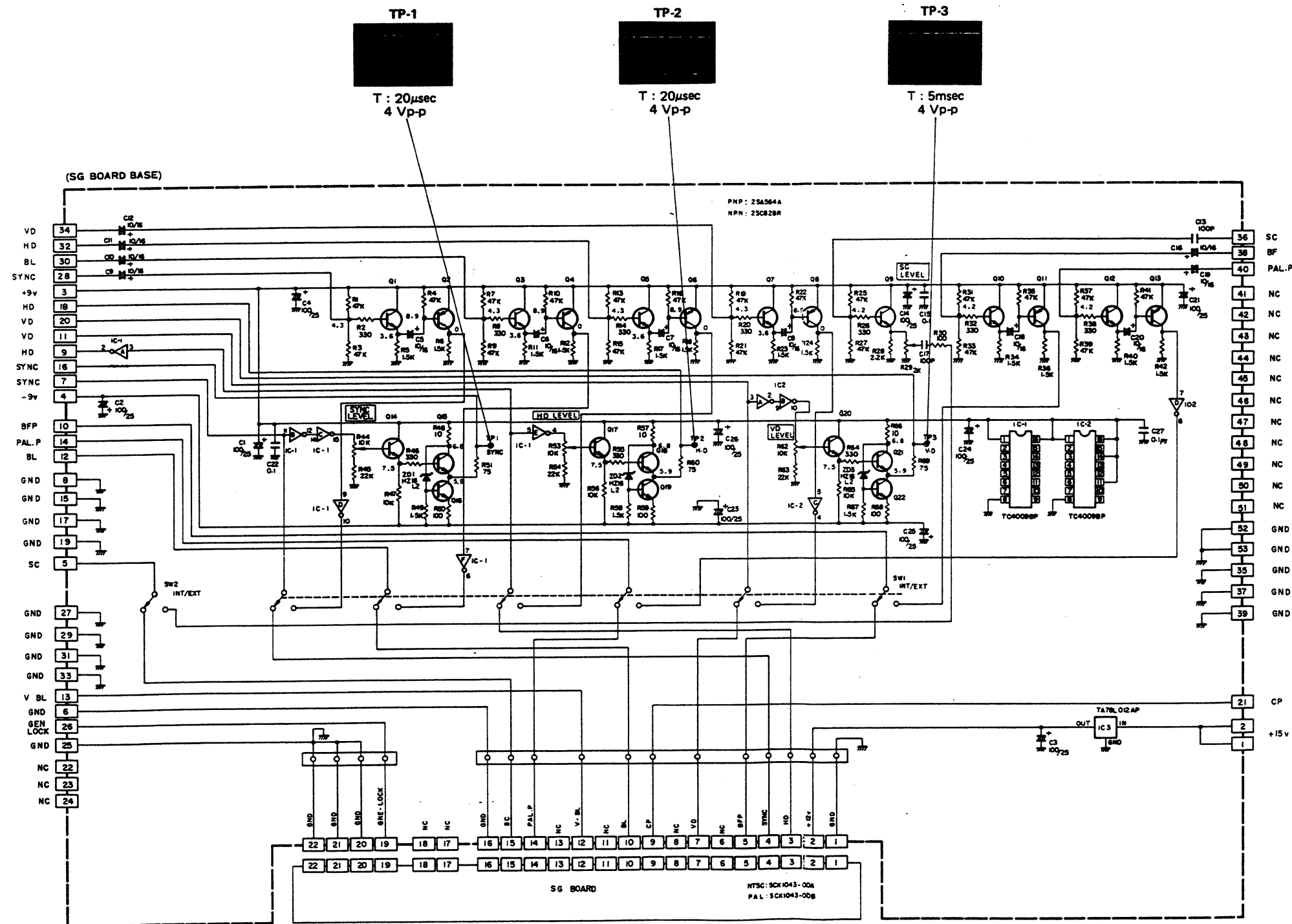
(SG BOARD BASE)

| PARTS No. | PAL | NTSC |
|-----------|-------------|-------------|
| Q12 | 2SC828(R) | - |
| Q13 | 2SA564(R) | - |
| R37 | QRD167J-473 | - |
| R38 | " -750 | - |
| R39 | " -473 | - |
| R40 | " -152 | - |
| R41 | " -473 | - |
| R42 | " -152 | - |
| C19 | QET61EM-106 | - |
| C20 | " -106 | - |
| C22 | - | QFM31HK-104 |



7.2.14(2) SYNC SIGNAL GENERATE SCHEMATIC DIAGRAM (SG BOARD)

— PAL —



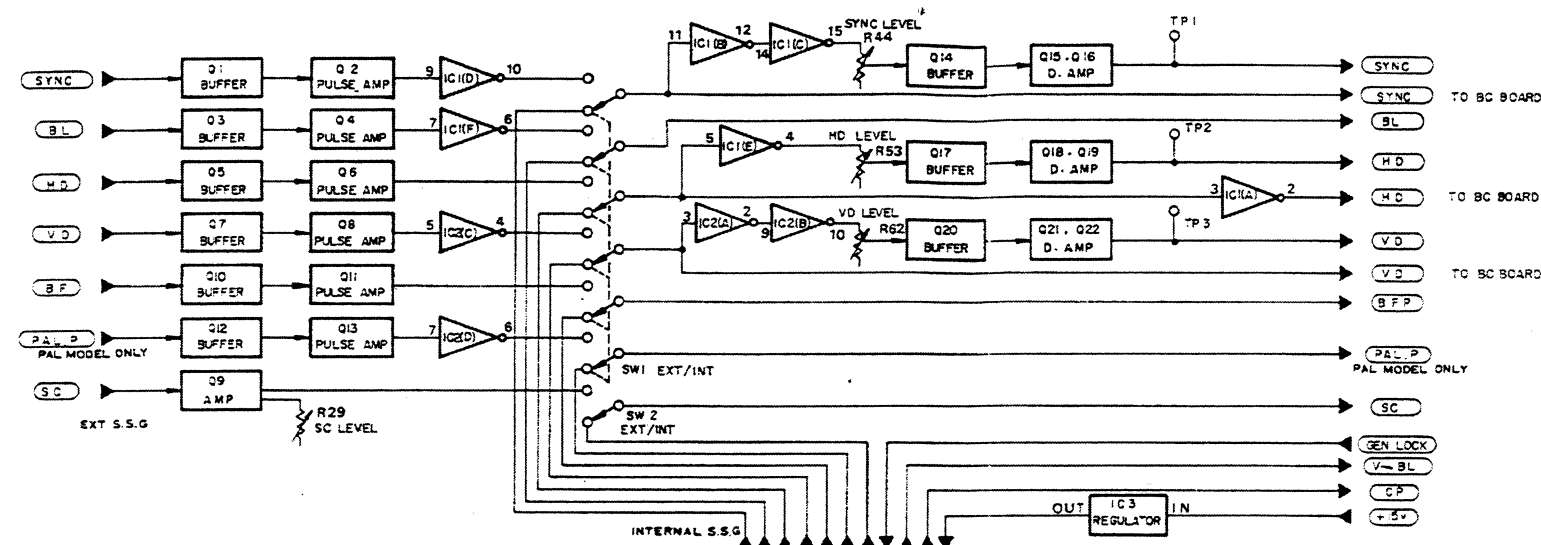
| PARTS No. | PAL | NTSC |
|-----------|-------------|-------------|
| Q12 | 2SC828(R) | — |
| Q13 | 2SA564(R) | — |
| R37 | QRD167J-473 | — |
| R38 | " -750 | — |
| R39 | " -473 | — |
| R40 | " -152 | — |
| R41 | " -473 | — |
| R42 | " -152 | — |
| C19 | QET61EM-106 | — |
| C20 | " -106 | — |
| C22 | — | QFM31HK-104 |

SG SCHEMATIC (PAL) 7-14
(SG BOARD)(NTSC)

7-14 SG SCHEMATIC (PAL)
(SG BOARD)(NTSC)

7.2.15 (2) SG BOARD BLOCK DIGARAM

- PAL -

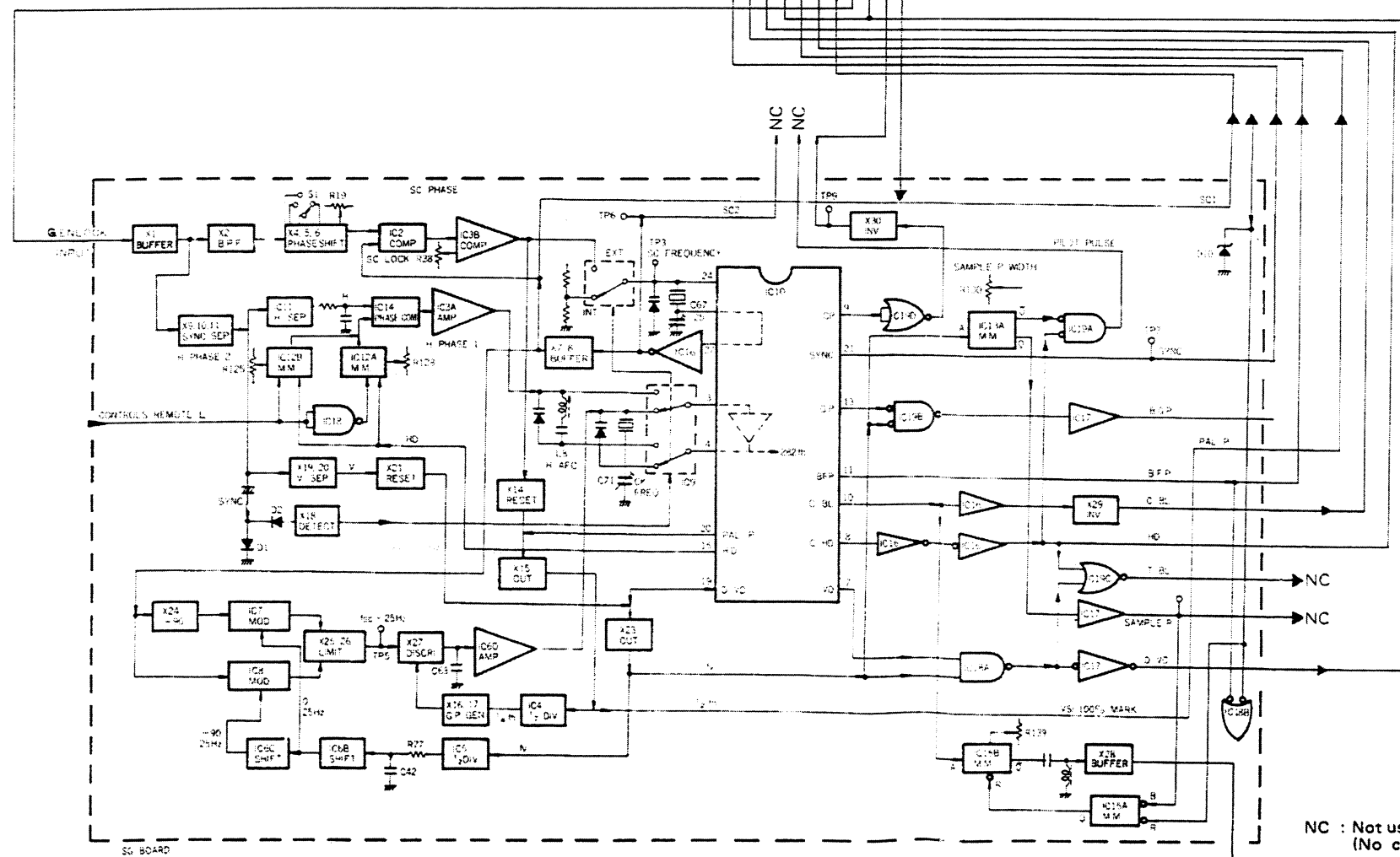
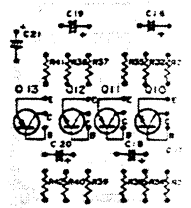


7.2.16 (2) SG CIRCUIT BOARD

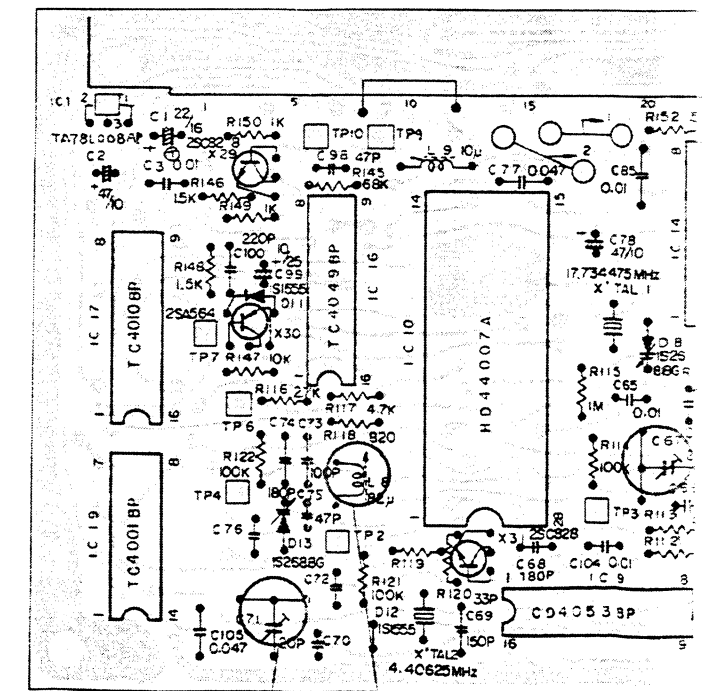
- SOLDERING SIDE - (PAL)

(SG BOARD BASE)

| PARTS No. | PAL | NTSC |
|-----------|-------------|-------------|
| Q12 | 2SC828(R) | - |
| Q13 | 2SA564(R) | - |
| R37 | QRD167J-473 | - |
| R38 | " -750 | - |
| R39 | " -473 | - |
| R40 | " -152 | - |
| R41 | " -473 | - |
| R42 | " -152 | - |
| C19 | QET61EM-106 | - |
| C20 | " -106 | - |
| C22 | - | QFM31HK-104 |



NC : Not used
(No connection)



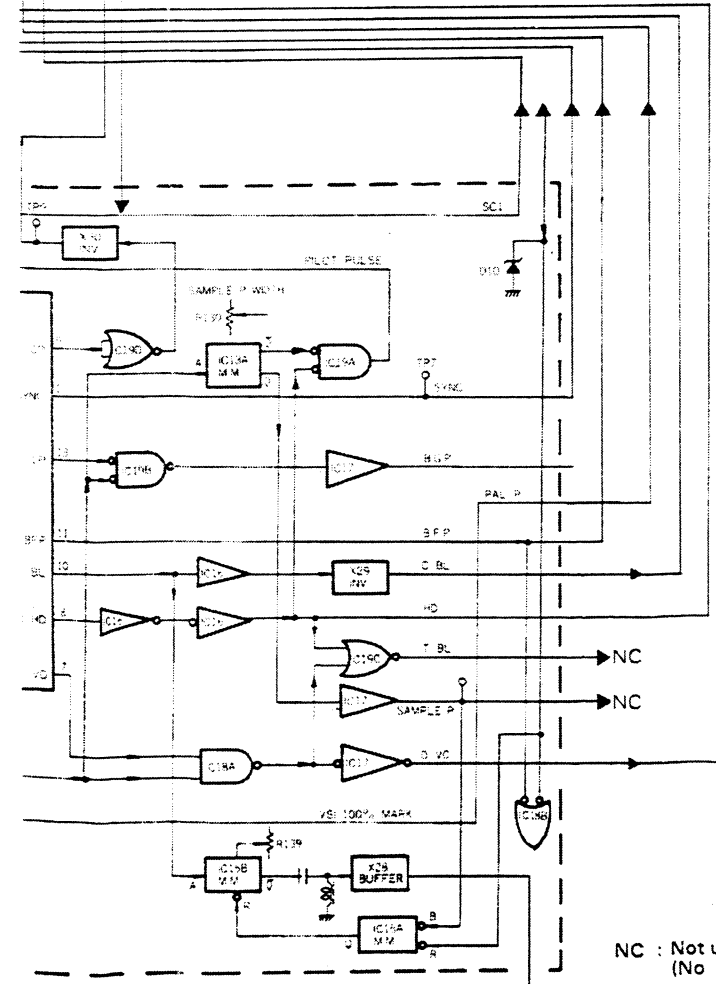
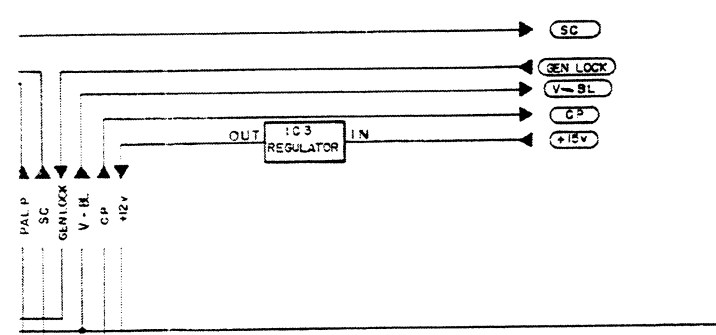
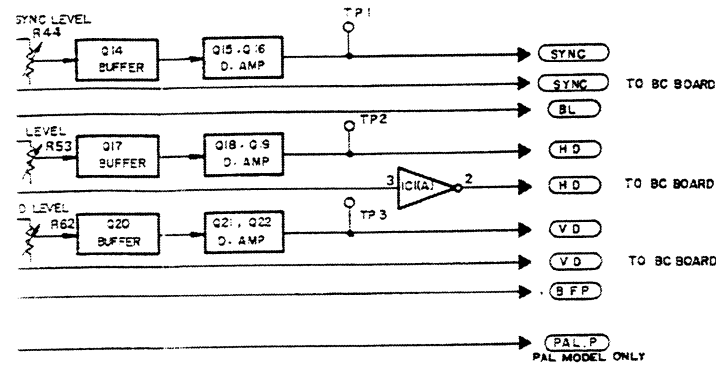
H-AFC

CLOCK (CK) FREQUENCY LOCK

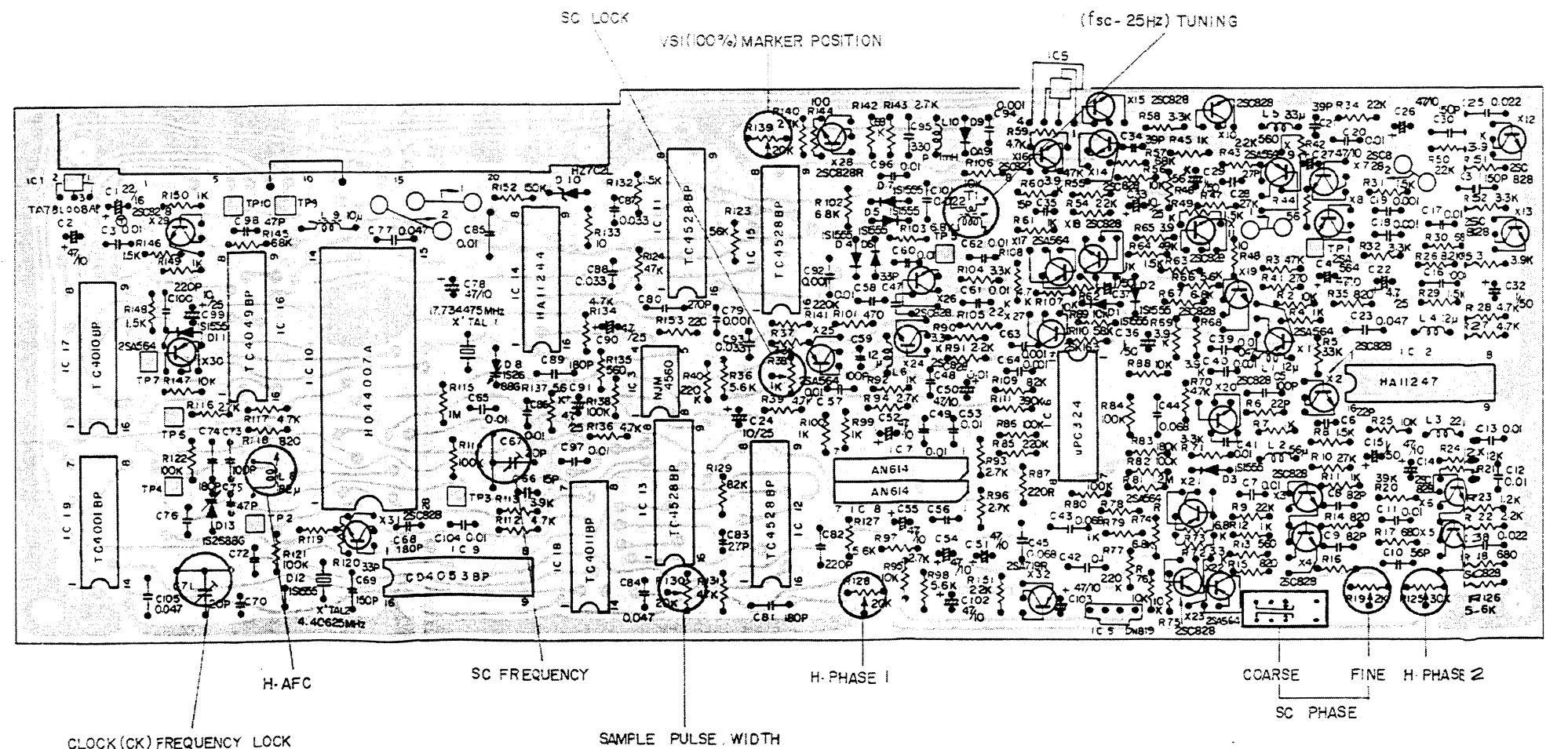
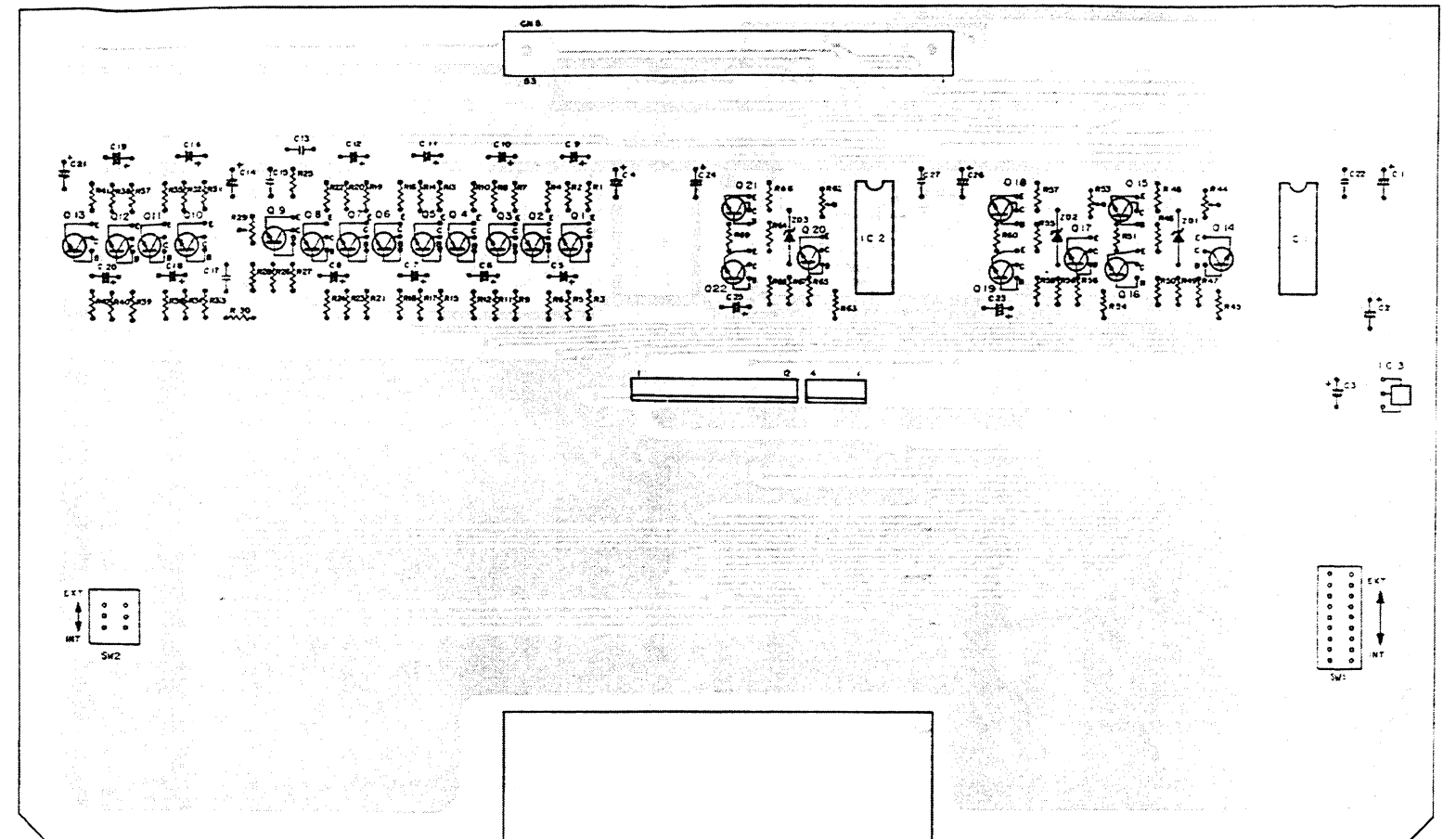
7.2.16 (2) SG CIRCUIT BOARD
— SOLDERING SIDE — (PAL)

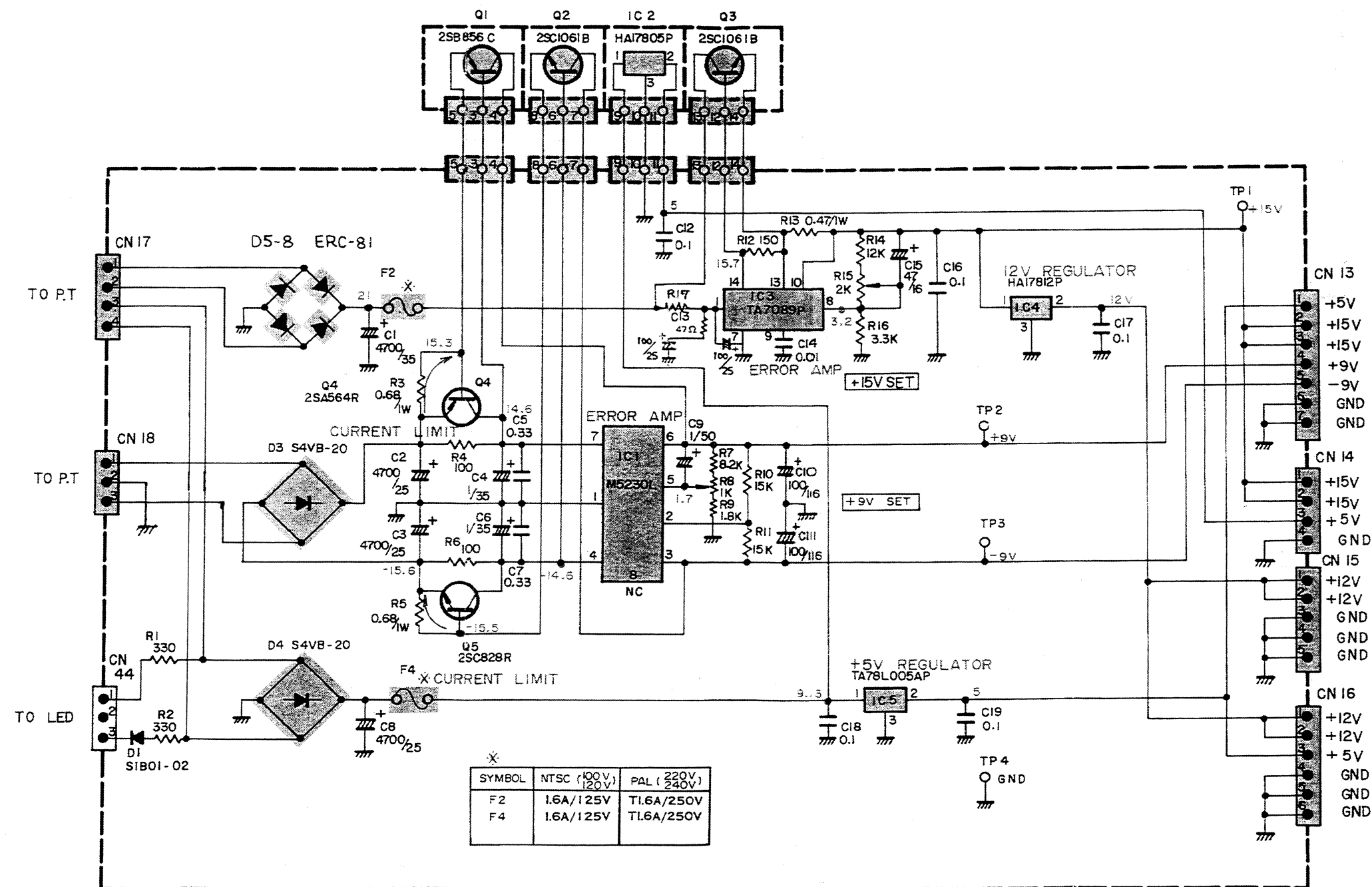
(SG BOARD BASE)

| PARTS No. | PAL | NTSC |
|-----------|-------------|-------------|
| Q12 | 2SC828(R) | — |
| Q13 | 2SA564(R) | — |
| R37 | QRD167J-473 | — |
| R38 | " -750 | — |
| R39 | " -473 | — |
| R40 | " -152 | — |
| R41 | " -473 | — |
| R42 | " -152 | — |
| C19 | QET61EM-106 | — |
| C20 | " -106 | — |
| C22 | — | QFM31HK-104 |



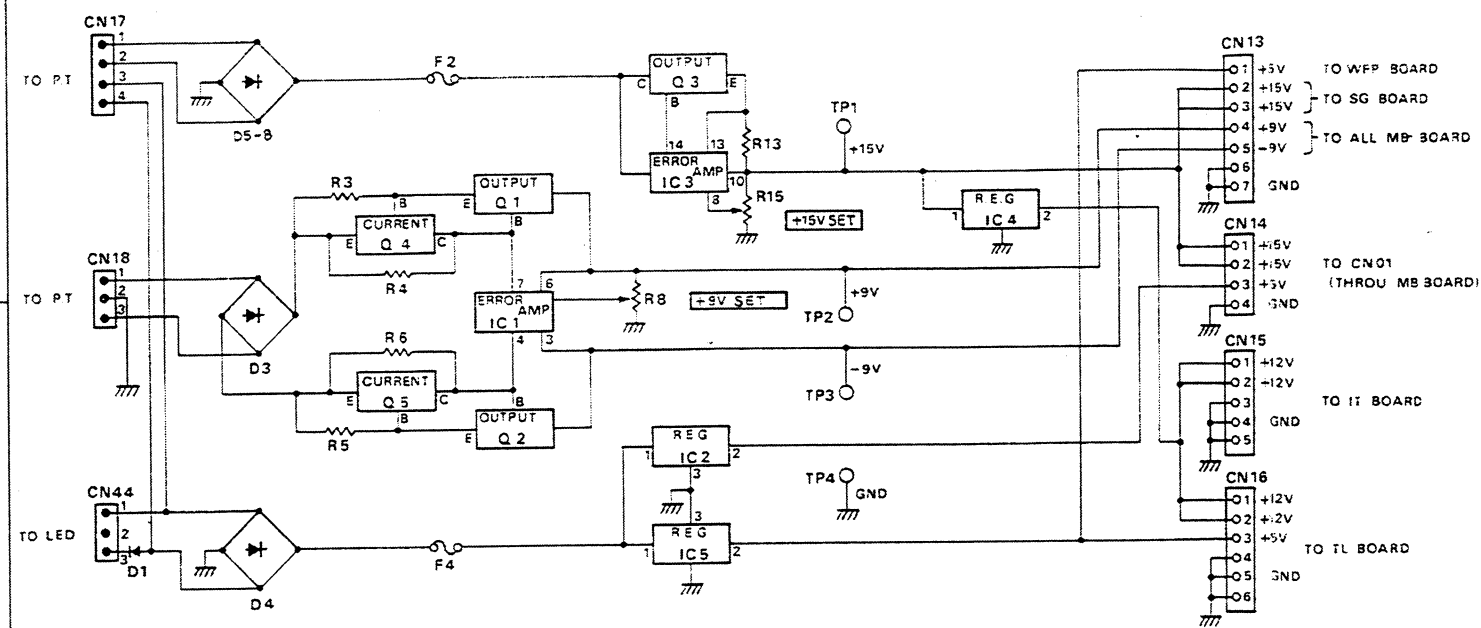
NC : Not used
(No connection)





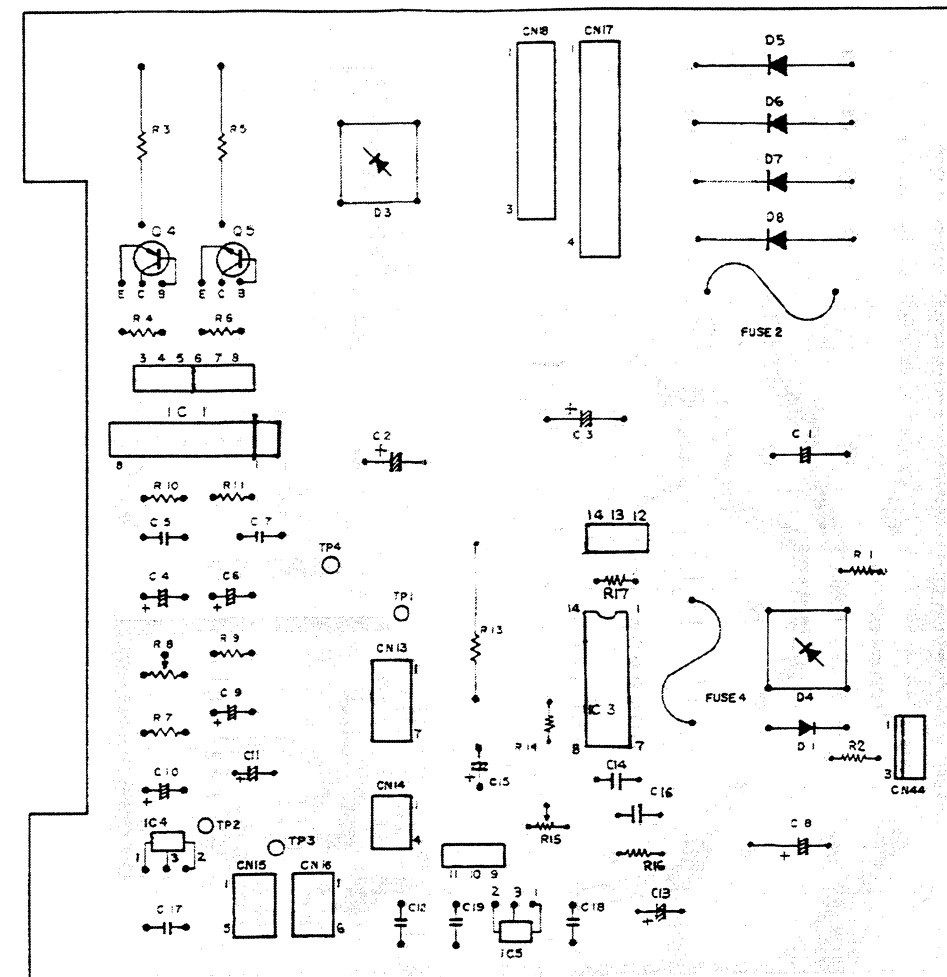
| SYMBOL | NTSC (100V, 120V) | PAL (220V, 240V) |
|--------|-------------------|------------------|
| F2 | 1.6A/125V | T1.6A/250V |
| F4 | 1.6A/125V | T1.6A/250V |

7.2.18 PS BOARD BLOCK DIAGRAM

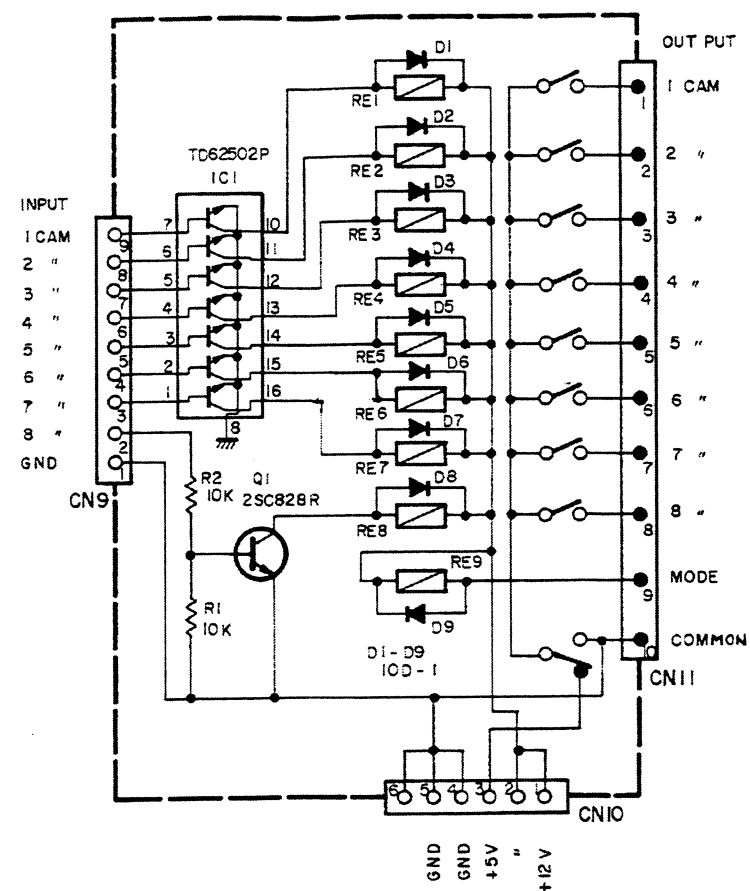


*CURRENT : CURRENT LIMIT
REG : REGULATOR

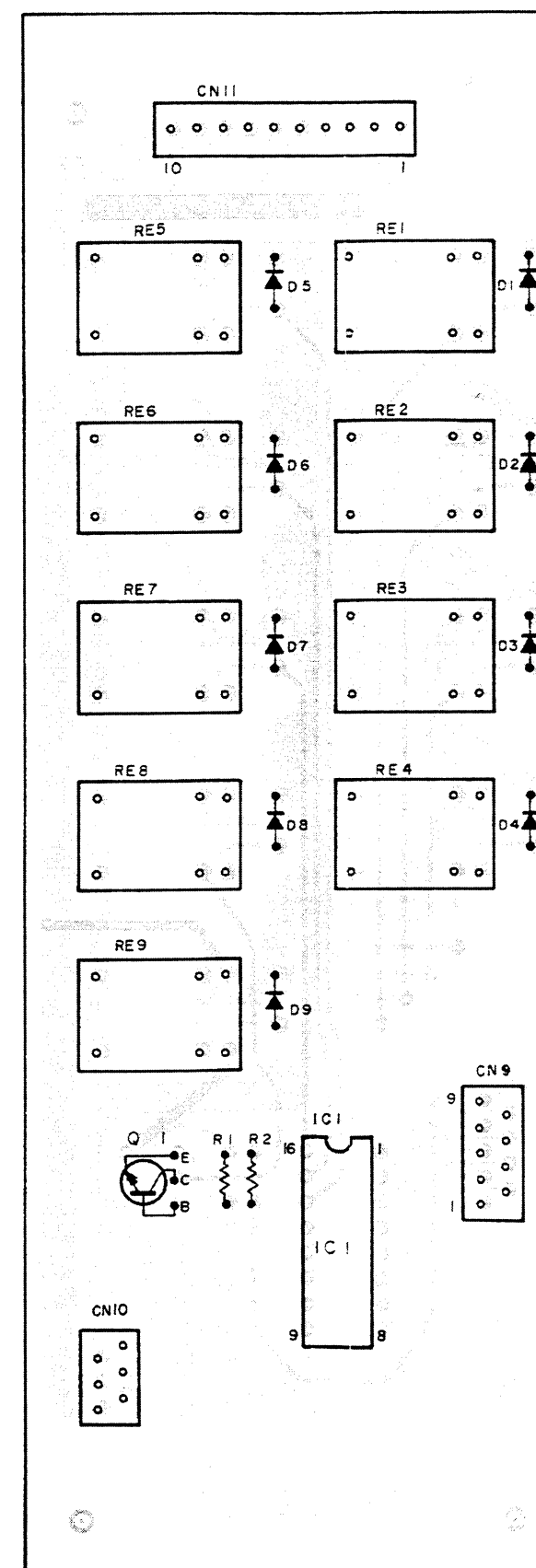
7.2.19 PS CIRCUIT BOARD
— SOLDERING SIDE —



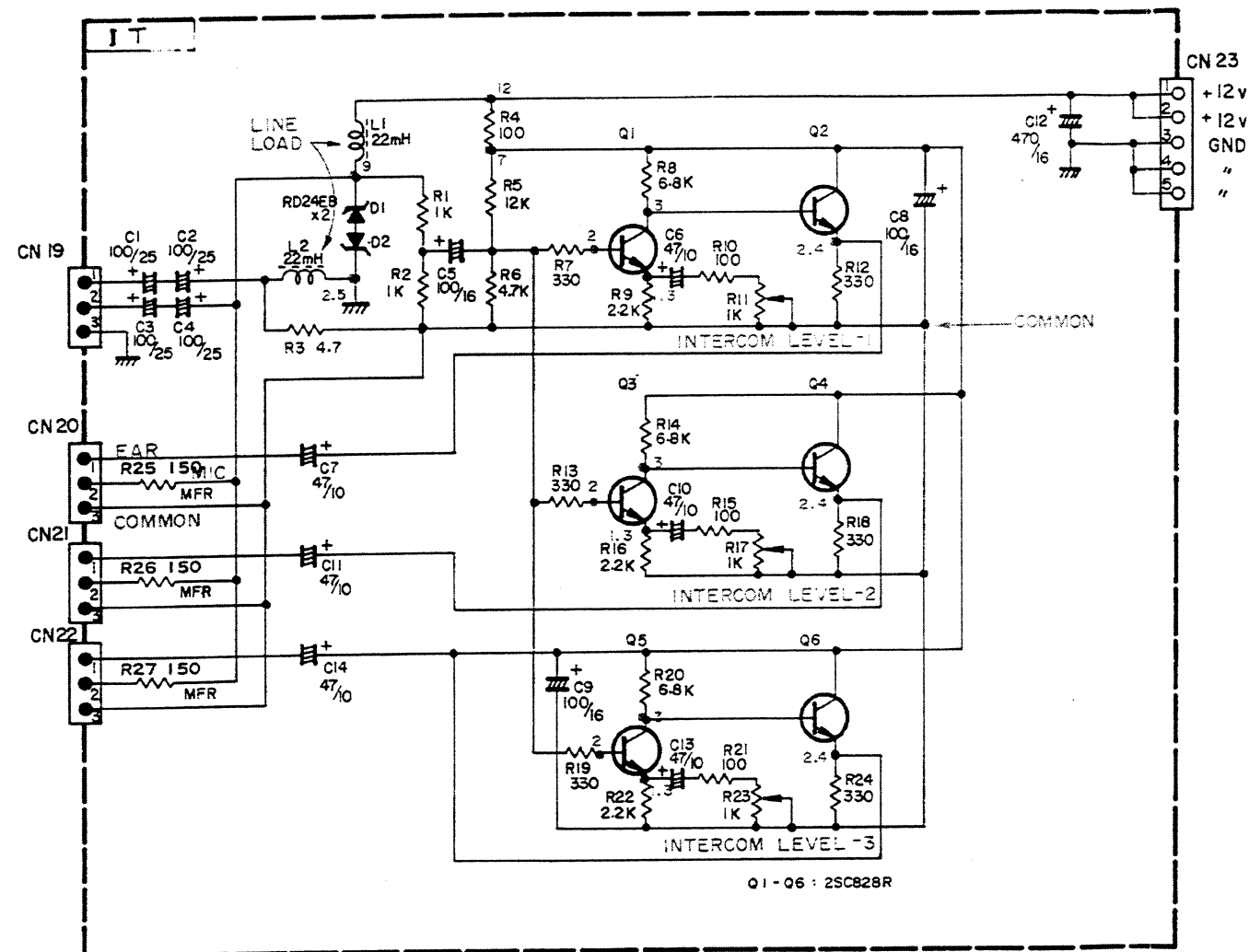
7.2.20 TALLY BOARD SCHEMATIC DIAGRAM (TL BOARD)



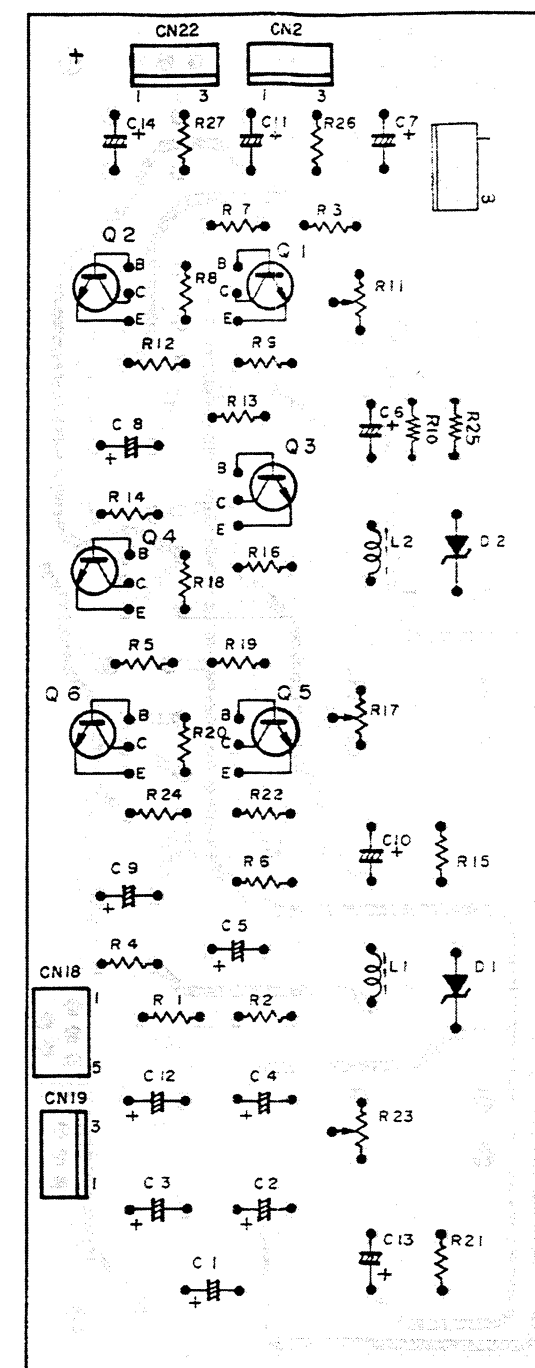
7.2.21 TL CIRCUIT BOARD
— SOLDERING SIDE —



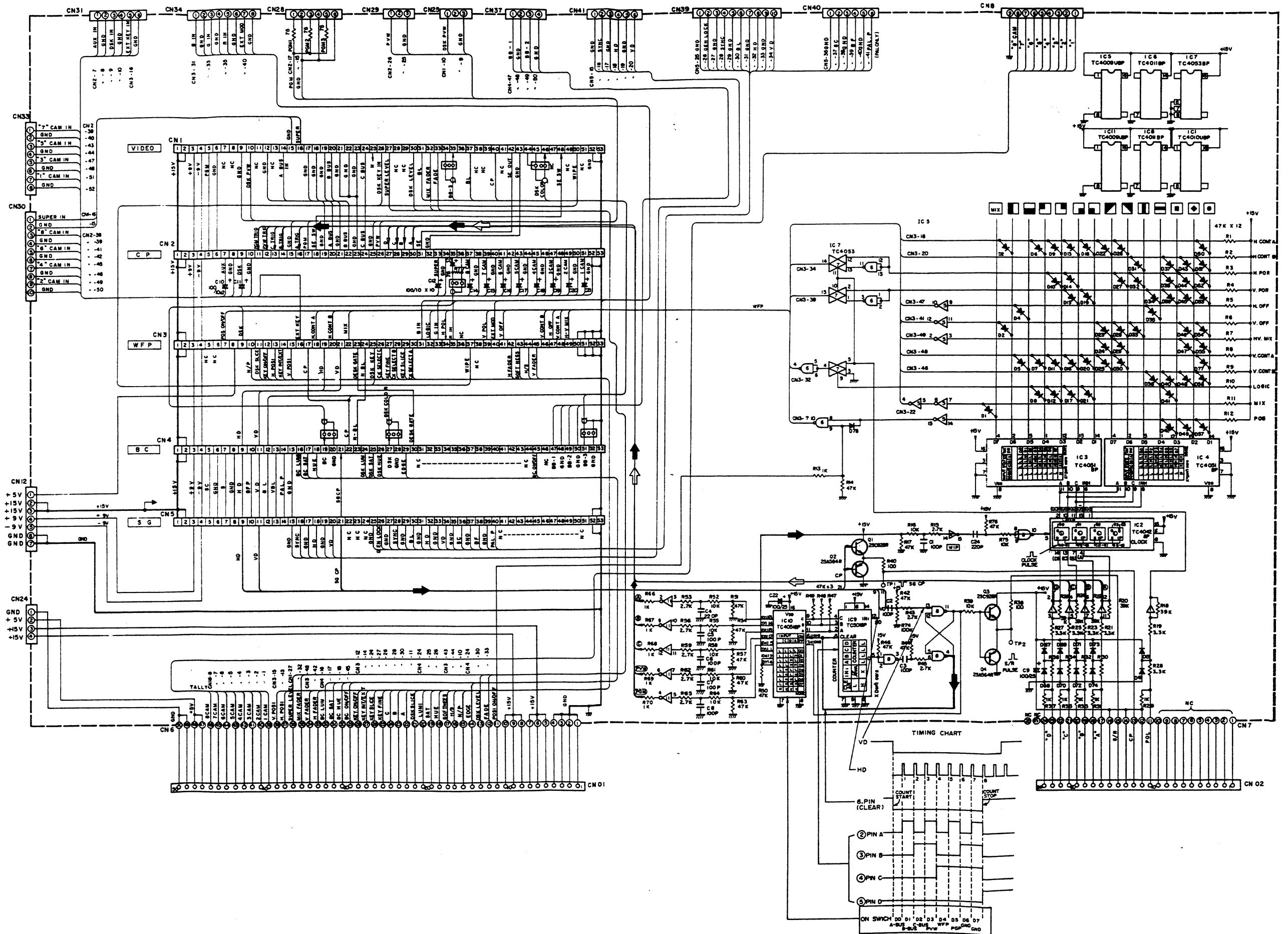
7.2.22 INTERCOM BOARD SCHEMATIC DIAGRAM (IT BOARD)



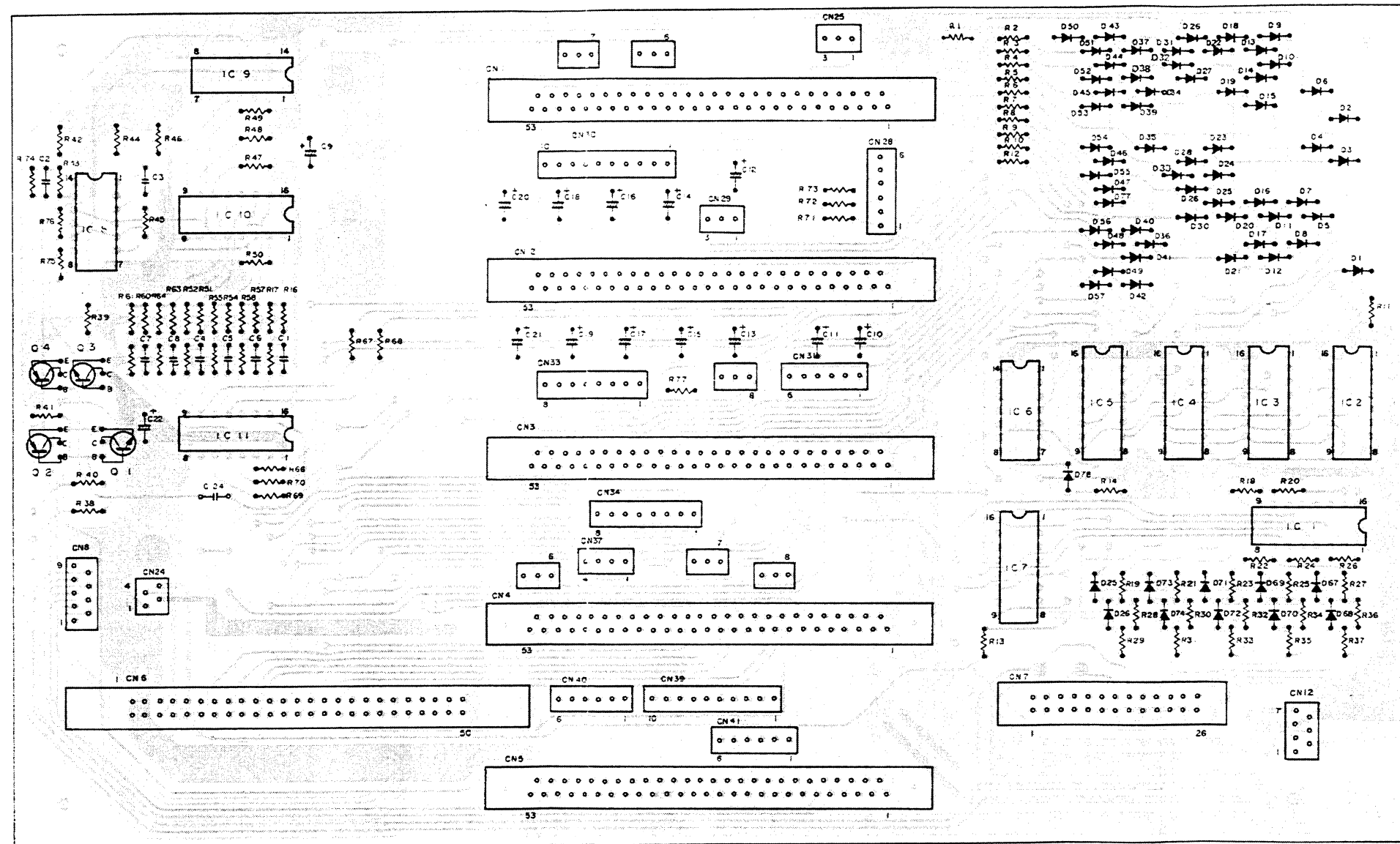
7.2.23 IT CIRCUIT BOARD
- SOLDERING SIDE -



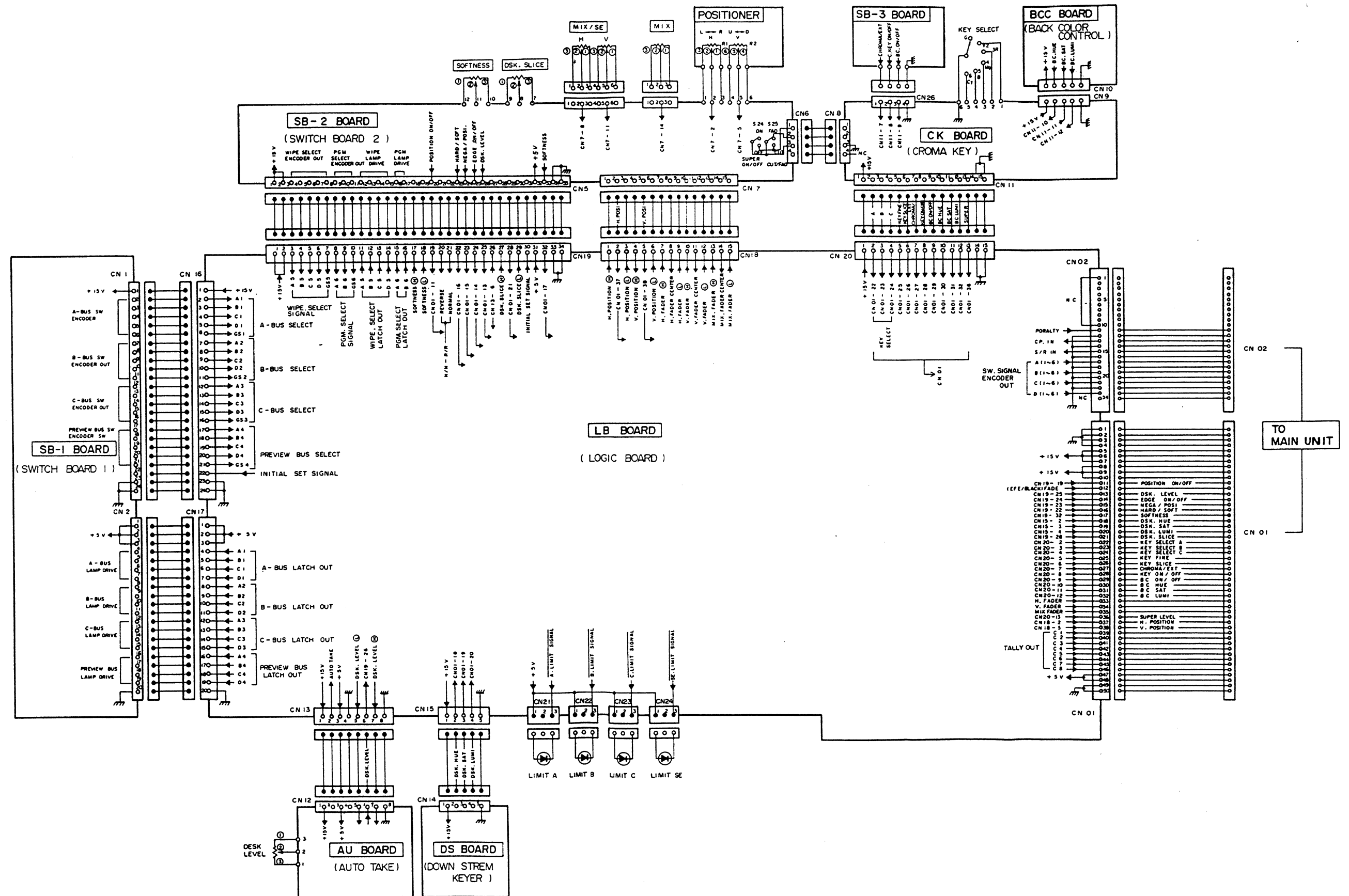
7.2.24 MOTHER BOARD SCHEMATIC DIAGRAM (MB BOARD)



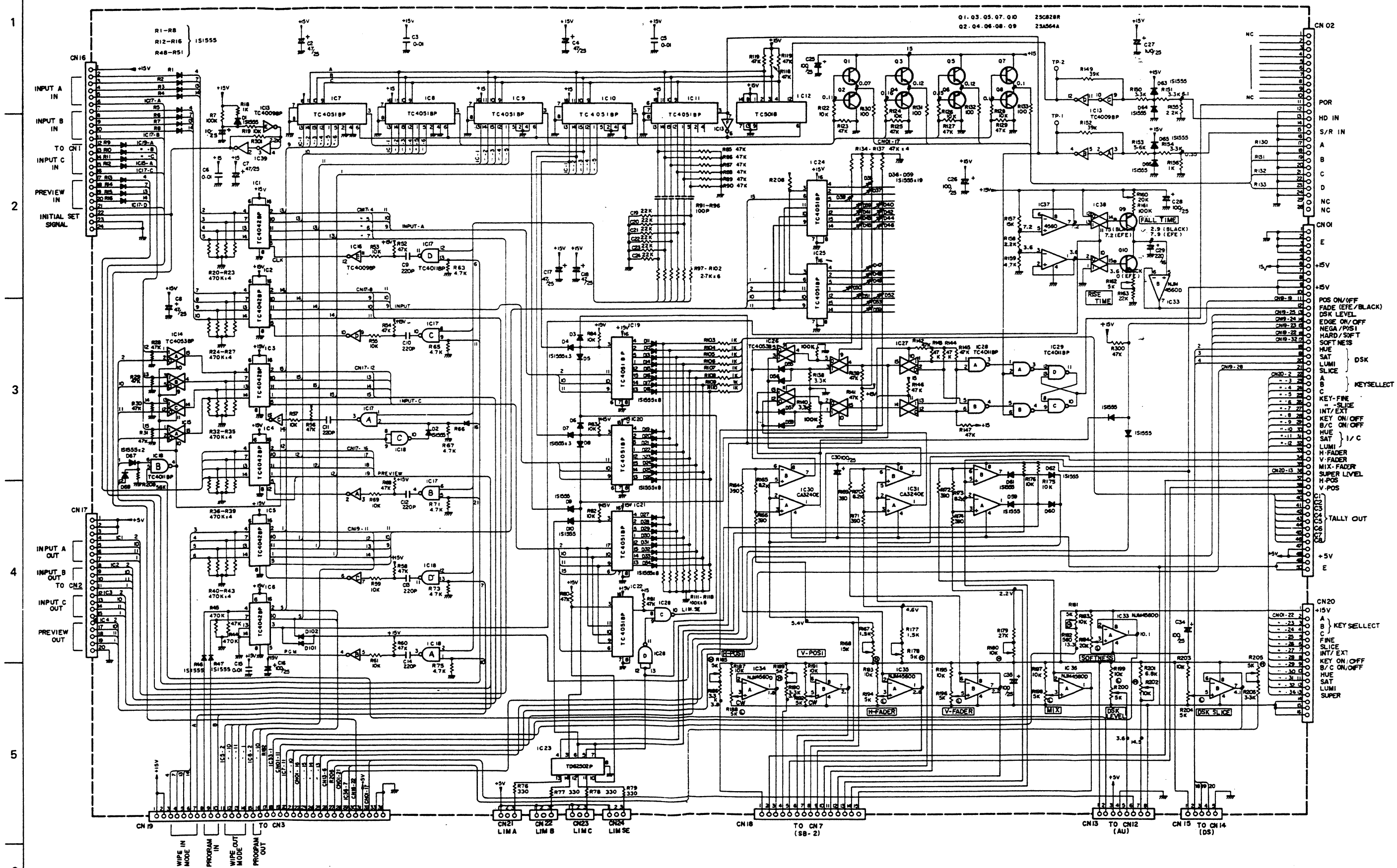
7.2.25 MB CIRCUIT BOARD
— SOLDERING SIDE —



7.3.1 CONTROL UNIT OVERALL WIRING



7.3.2 LOGIC CONTROL BOARD SCHEMATIC DIAGRAM (LB BOARD)



LB SCHEMATIC 7-24
(OVERALL WIRING (CONTROL))

**7-24 LB SCHEMATIC
(OVERALL WIRING (CONTROL))**

A vertical scale with numbers 1 through 6. Horizontal lines are drawn at each number level, extending from the left margin towards the right. The numbers are positioned to the left of the scale line.



7.3.4 LB CIRCUIT BOARD
— SOLDERING SIDE —

N UNIT

OUT

IF CN 01
(BLACK)

FF
I
T

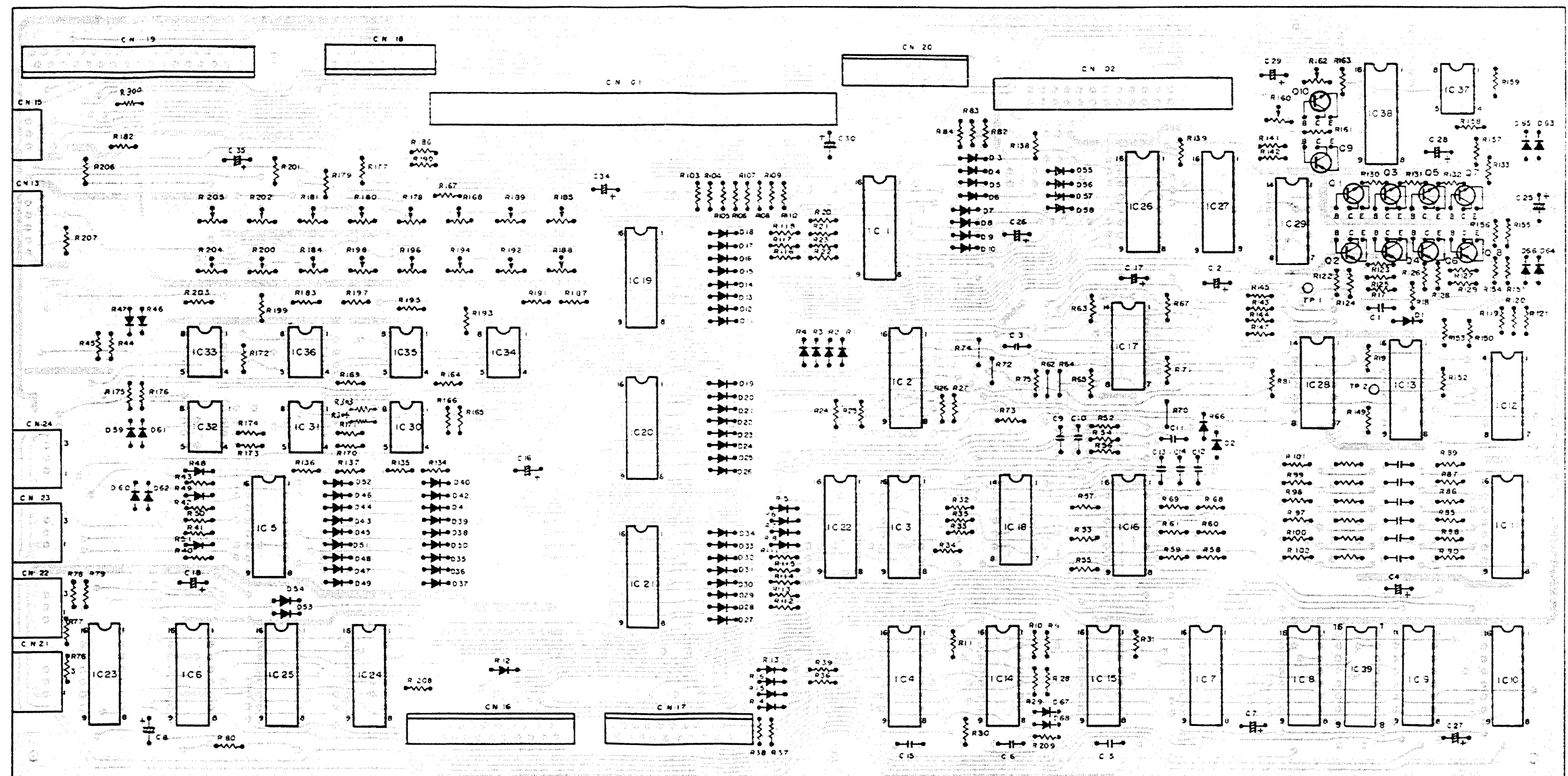
SK

KEY SELECT
COARSE
IN
LICE
HROMA
IN/OFF
N/OFF
COLOR
BACKGROUND
MIX/SE FADER
FADER
R LEVEL
POSITION

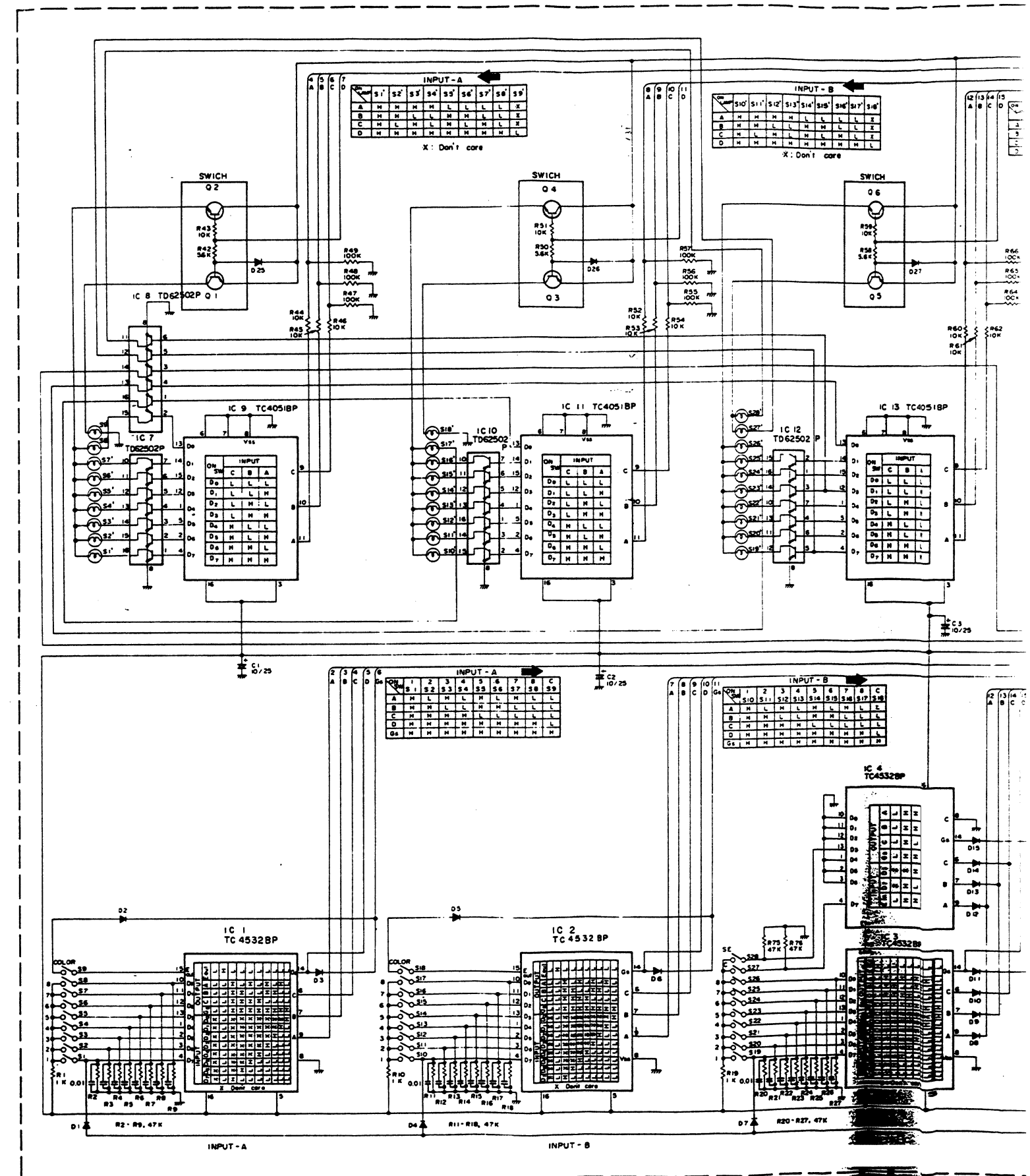
SK

HROMA KEY
SELECT COARSE

HROMA
N/OFF
N/OFF
COLOR
BACKGROUND
LEVEL



7.3.5 SWITCH BOARD-1 SCHEMATIC DIAGRAM (SB-1 BOARD)



D

E

F

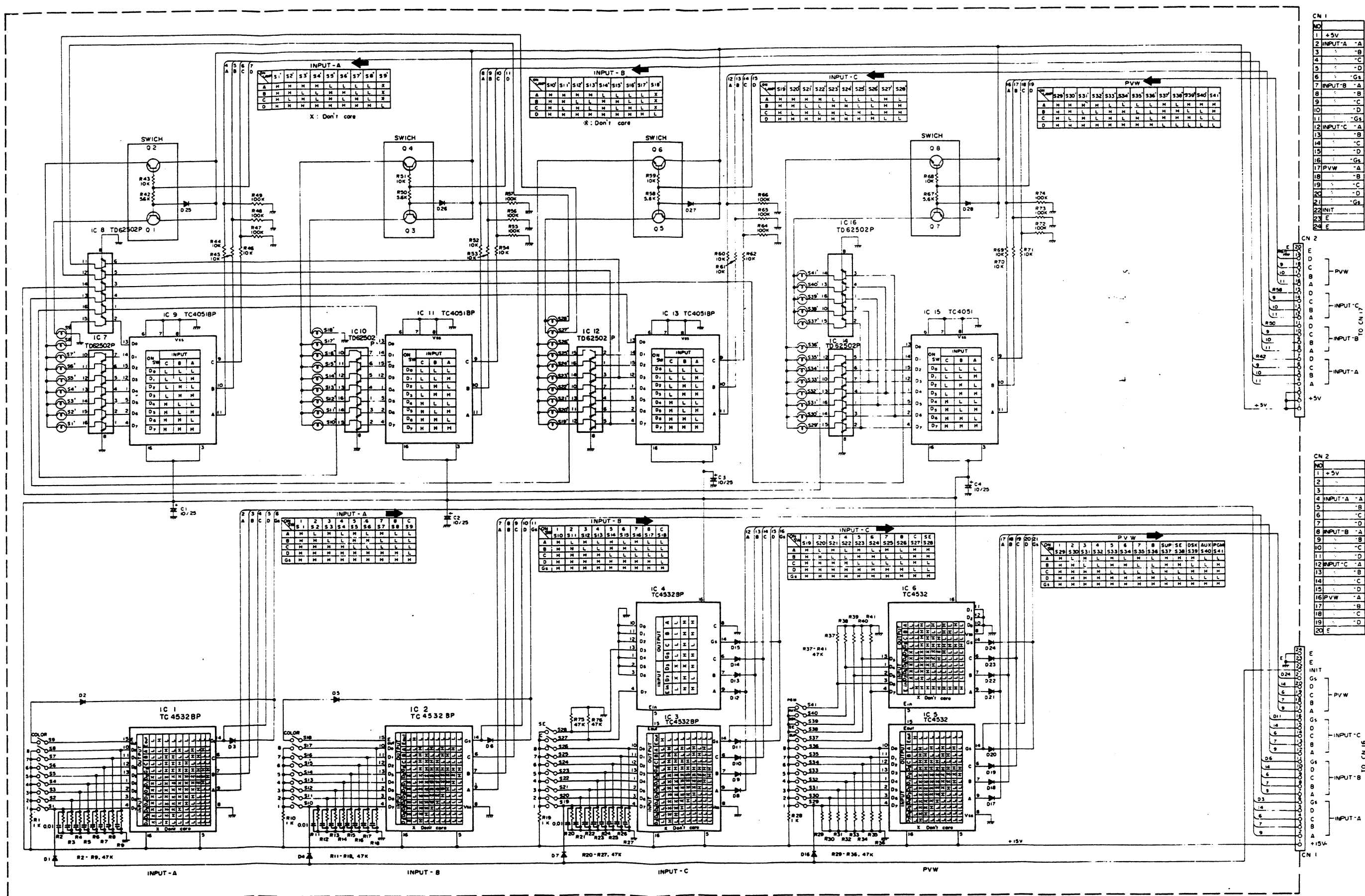
G

H

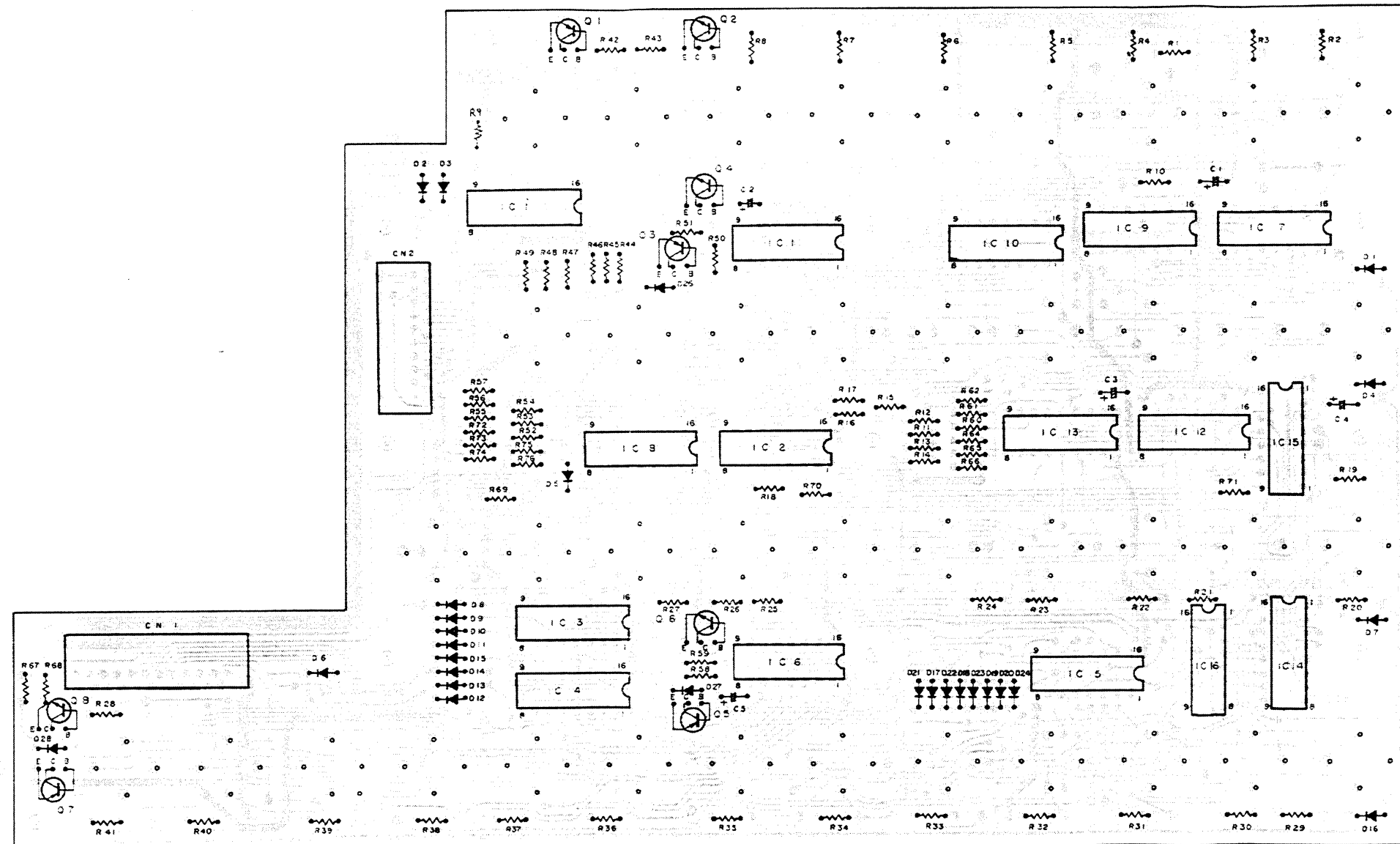
I

J

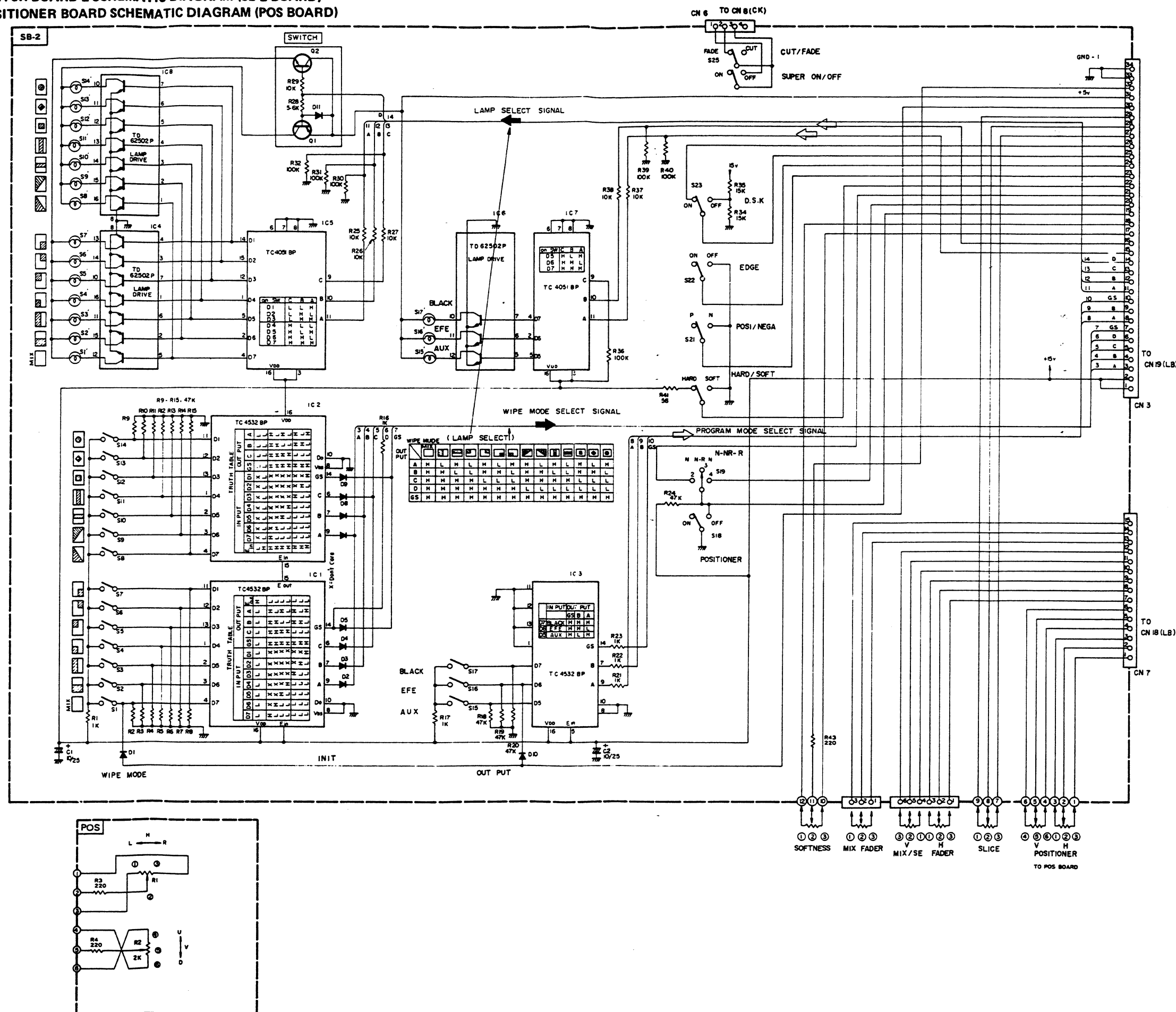
K



7.3.6 SB-1 CIRCUIT BOARD
— SOLDERING SIDE —



7.3.7 SWITCH BOARD-2 SCHEMATIC DIAGRAM (SB-2 BOARD)
7.3.8 POSITIONER BOARD SCHEMATIC DIAGRAM (POS BOARD)

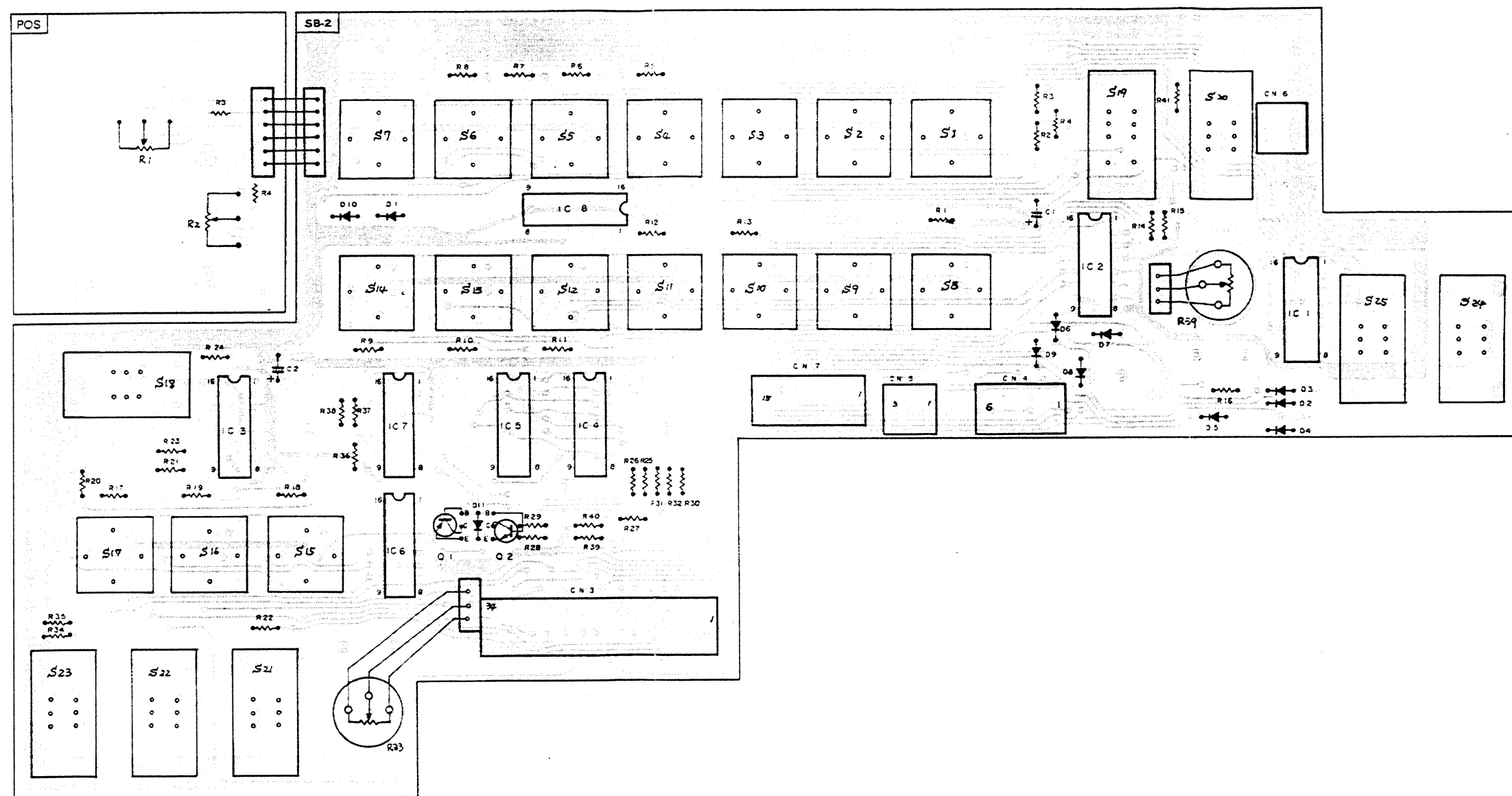


| NO | |
|----|----------------|
| 1 | +15v |
| 2 | +15v |
| 3 | WIPE MOPE A |
| 4 | B |
| 5 | C |
| 6 | D |
| 7 | GS |
| 8 | OUT PUT A |
| 9 | B |
| 10 | GS |
| 11 | WIPE MOPE A |
| 12 | B |
| 13 | C |
| 14 | D |
| 15 | OUT PUT LAMP A |
| 16 | B |
| 17 | SOFTNESS (H) |
| 18 | (L) |
| 19 | POSI ON / OFF |
| 20 | REVERSE |
| 21 | NORMAL |
| 22 | HARD / SOFT |
| 23 | POSI / NEGA |
| 24 | EDGE |
| 25 | DSK OUT LEVEL |
| 26 | KEY LEVEL |
| 27 | DSK SLICE (H) |
| 28 | SLICE (L) |
| 29 | SLICE (L) |
| 30 | INIT PULSE |
| 31 | +5v |
| 32 | SOFTNESS |
| 33 | GND - 1 |
| 34 | GND - 1 |

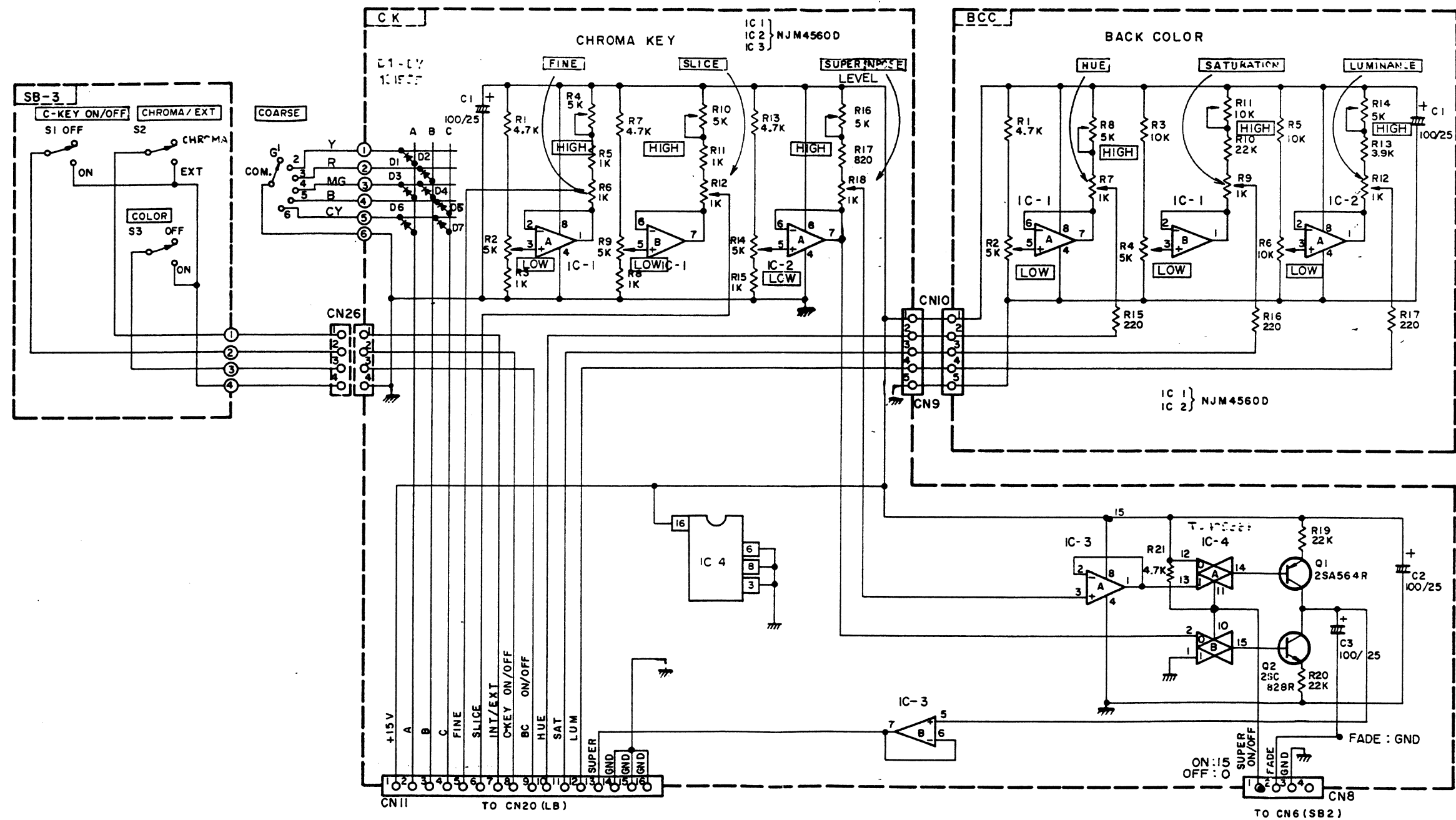
| NO | |
|----|-----------|
| 1 | H POS ③ |
| 2 | ② |
| 3 | ① |
| 4 | V POS ⑥ |
| 5 | ⑤ |
| 6 | ④ |
| 7 | H FADER |
| 8 | - |
| 9 | - |
| 10 | V FADER |
| 11 | - |
| 12 | - |
| 13 | MIX FADER |
| 14 | - |
| 15 | - |

7.3.9 SB-2 CIRCUIT BOARD
7.3.10 POS CIRCUIT BOARD

— SOLDERING SIDE —



- 7.3.11 SWITCH BOARD-3 SCHEMATIC DIAGRAM (SB-3 BOARD)
 7.3.12 CHROMA KEY BOARD SCHEMATIC DIAGRAM (CK BOARD)
 7.3.13 BACK COLOUR CONTROL BOARD SCHEMATIC DIAGRAM (BCC BOARD)



A

B

C

D

E

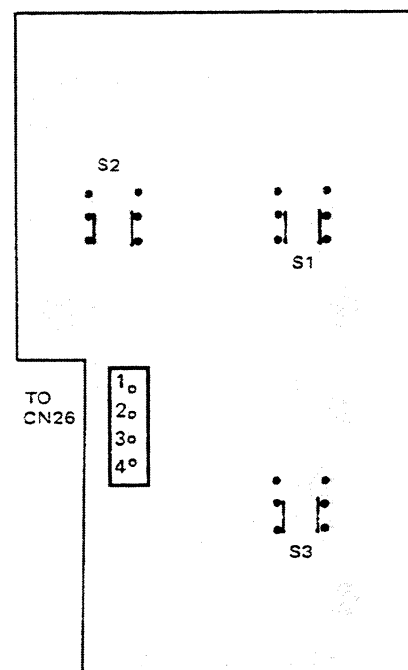
F

G

H

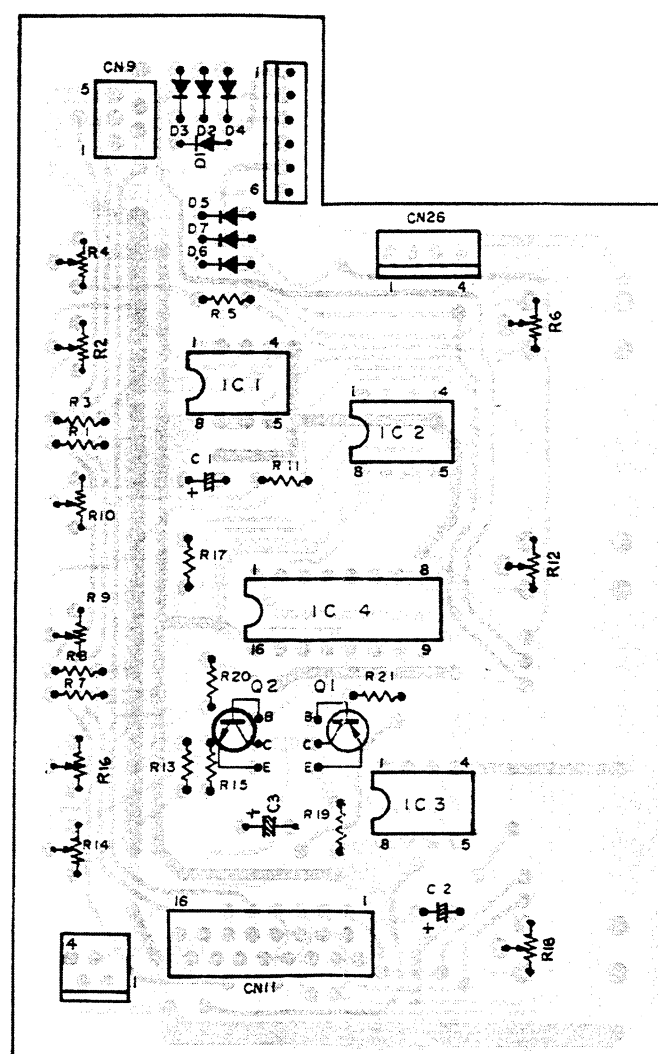
7.3.14 SB-3 CIRCUIT BOARD

- SOLDERING SIDE -



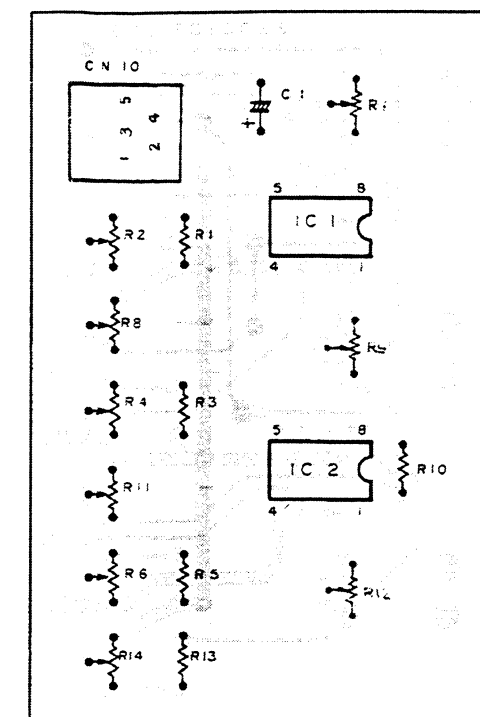
7.3.15 CK CIUCUIT BOARD

- SOLDERING SIDE -

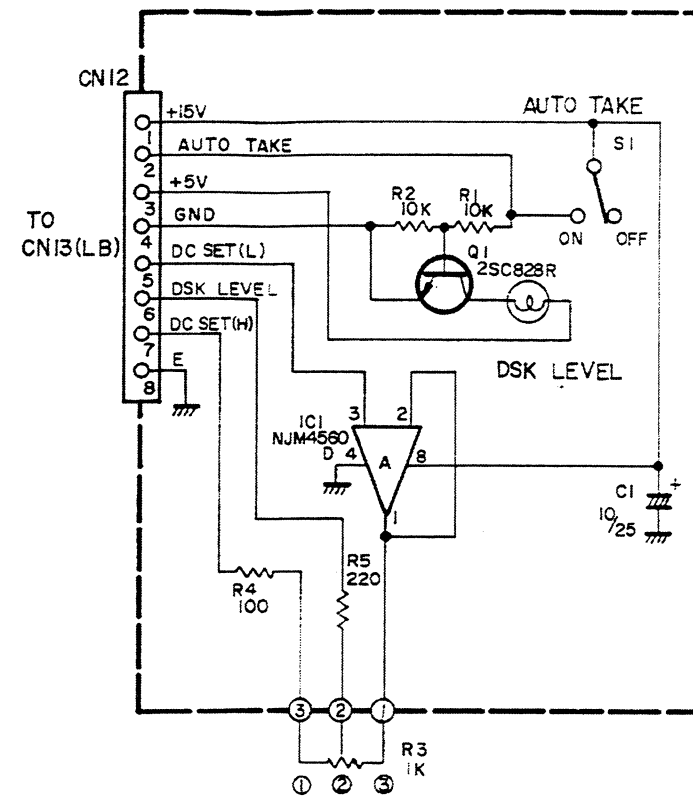


7.3.16 BCC CIRCUIT BOARD

- SOLDERING SIDE -

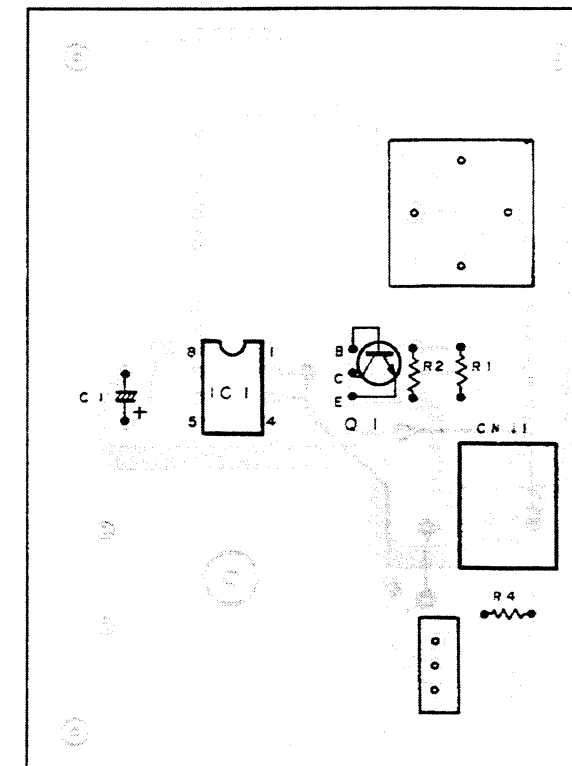


7.3.17 AUTO TAKE BOARD SCHEMATIC DIAGRAM (AU BOARD)

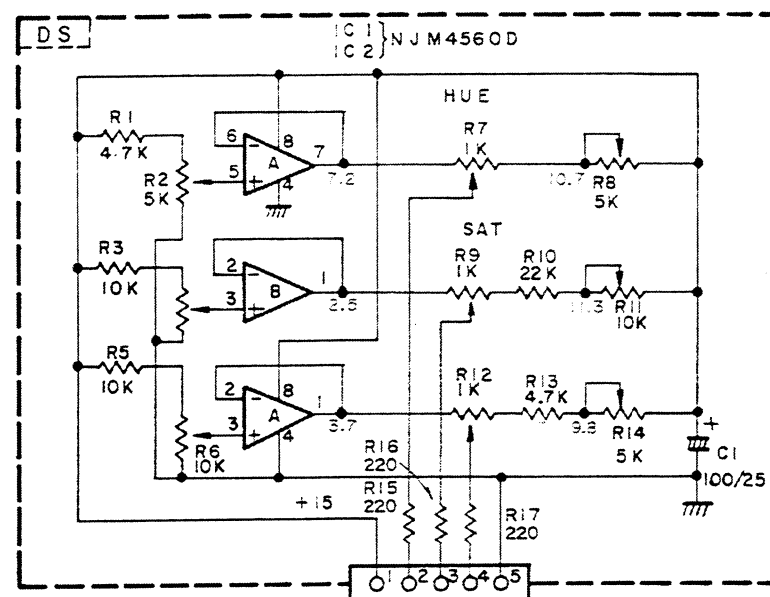


7.3.18 AU CIRCUIT BOARD

— SOLDERING SIDE —



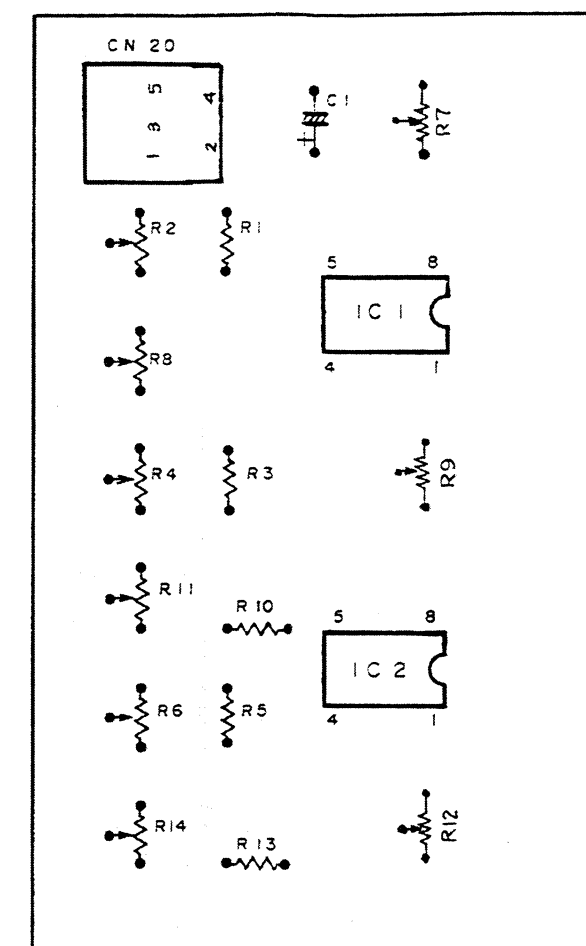
7.3.19 DOWNSTREAM KEYER BOARD SCHEMATIC DIAGRAM (DS BOARD)



| PIN NO | CN 10 / 14 |
|--------|------------|
| 1 | +15V |
| 2 | HUE |
| 3 | SAT |
| 4 | LUM |
| 5 | E |

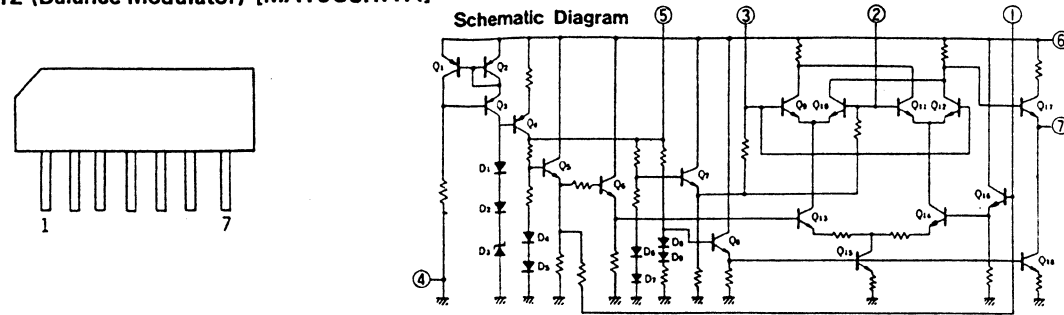
7.3.20 DS CIRCUIT BOARD

— SOLDERING SIDE —

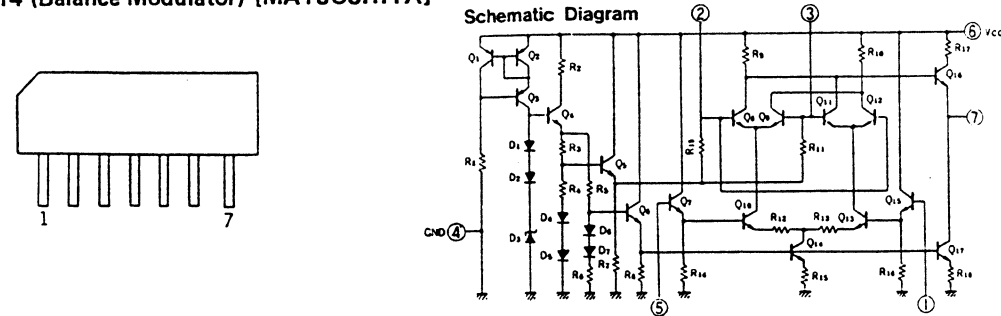


7.4 SCHEMATIC DIAGRAM OF ICs

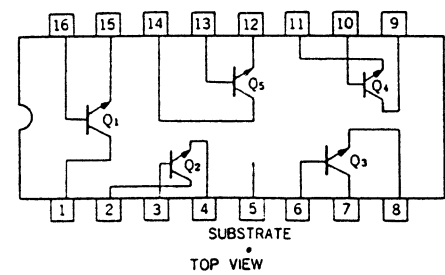
*AN612 (Balance Modulator) [MATSUSHITA]



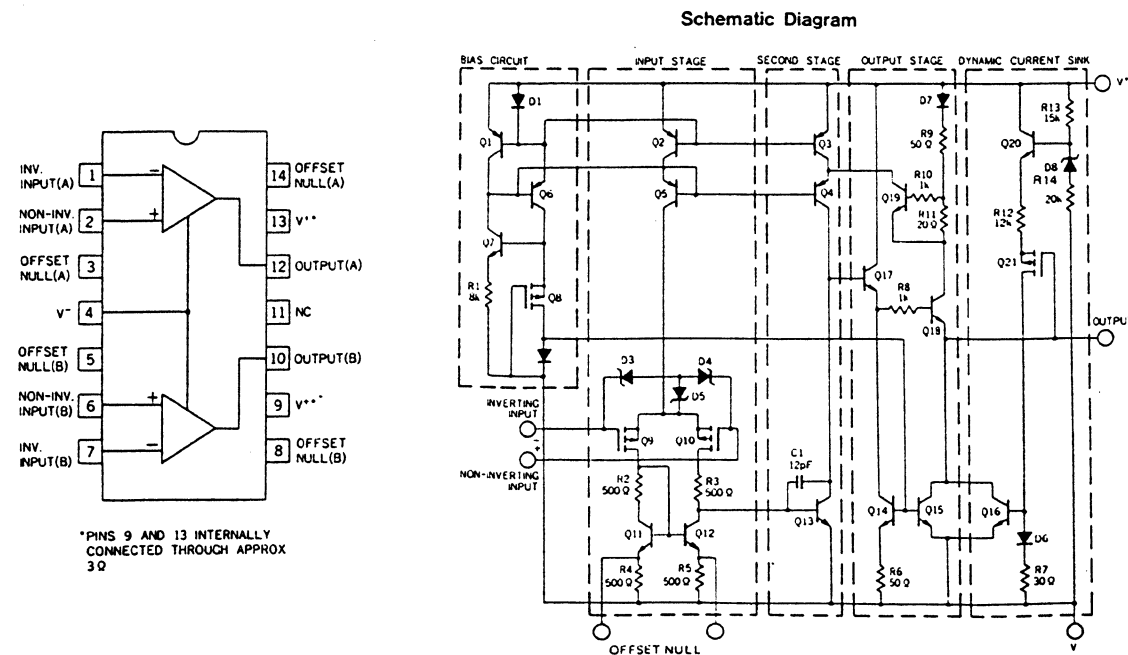
*AN614 (Balance Modulator) [MATSUSHITA]



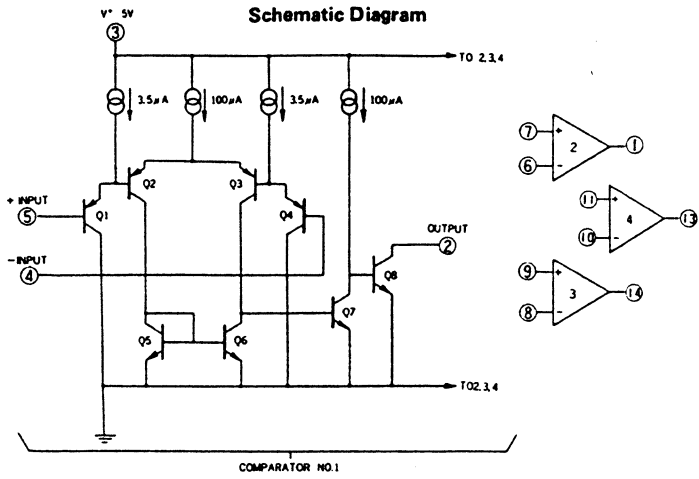
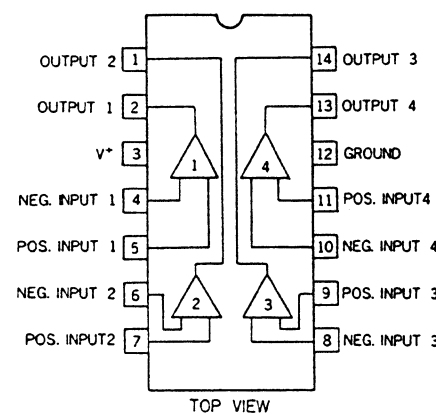
*CA3083AE (N-P-N Transistor Array) [RCA]



*CA3240E (Dual BiMOS Operational Amplifiers) [RCA]

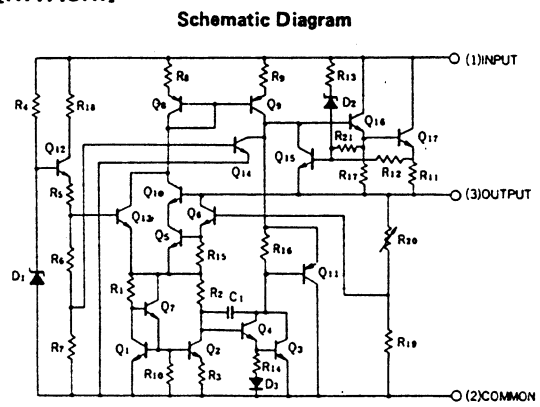
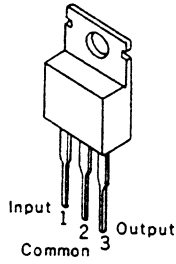


*CA339E (Quad Voltage Comparators) [RCA]

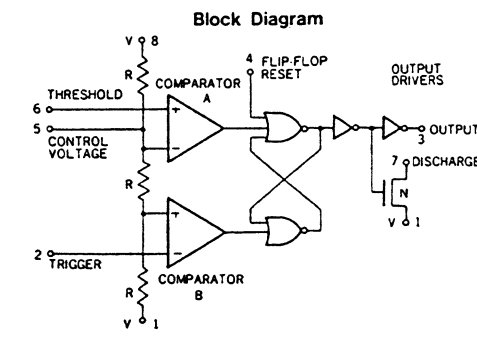
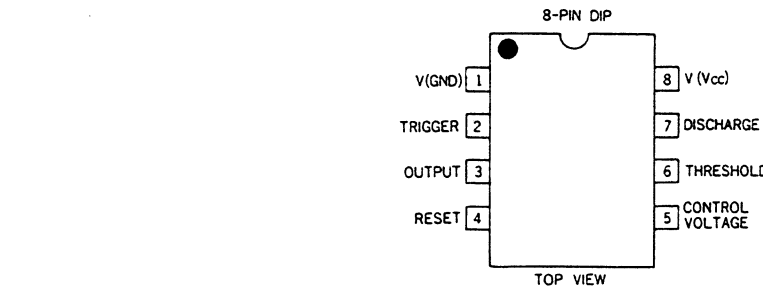


*HA17805P (3-Terminal Fixed Voltage Regulators) [HITACHI]

*HA17812P

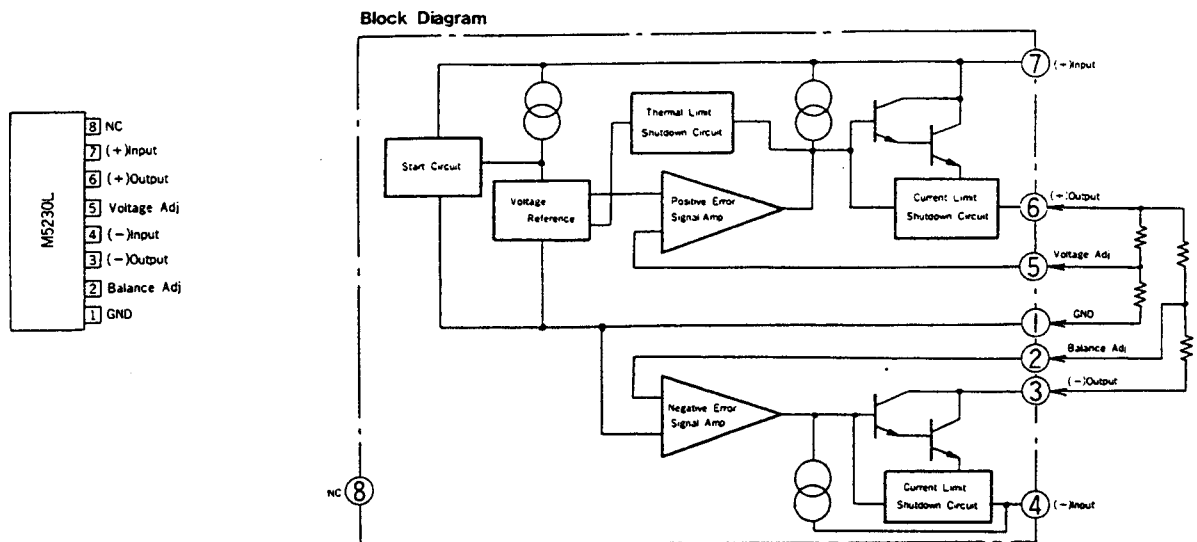


*ICM7555IPA (Timer) [INTERSIL]

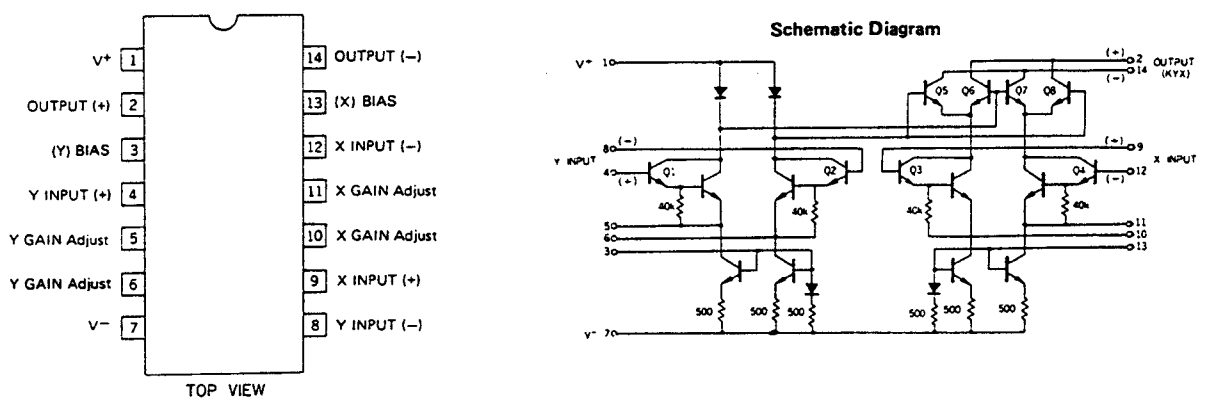


| THRESHOLD VOLTAGE | TRIGGER VOLTAGE | RESET | OUTPUT | DISCHARGE SWITCH |
|--------------------------------------|--------------------------------------|-------|--------|------------------|
| DONT CARE | DONT CARE | LOW | LOW | ON |
| $> \frac{2}{3}(V^+ - V^-)$ | $> \frac{2}{3}(V^+ - V^-)$ | HIGH | LOW | ON |
| $\frac{1}{3} < V_{TH} < \frac{2}{3}$ | $\frac{1}{3} < V_{TH} < \frac{2}{3}$ | HIGH | ? | ? |
| $< \frac{1}{3}(V^+ - V^-)$ | $< \frac{1}{3}(V^+ - V^-)$ | HIGH | HIGH | OFF |

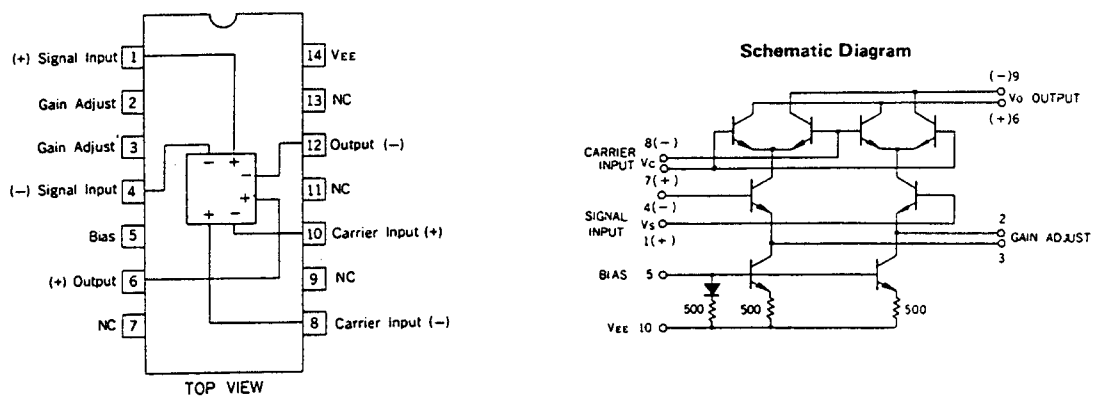
***M5230L (Precision Dual Tracking Regulators) [MATSUSHITA]**



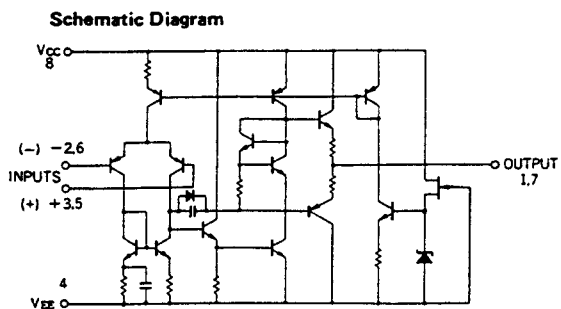
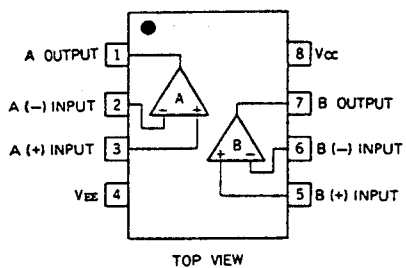
***MC1495L (Monolithic Differential Amplifier) [MOTOROLA]**



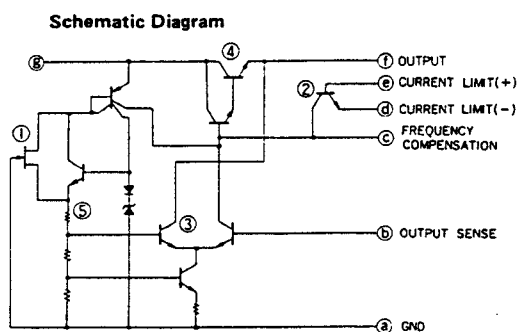
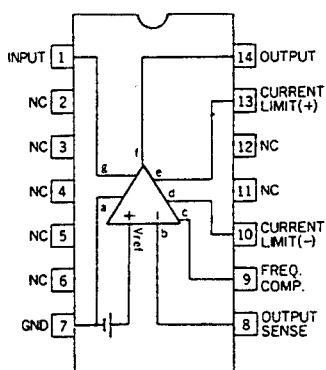
***MC1496P (Balance Modulator-Demodulator) [MOTOROLA]**



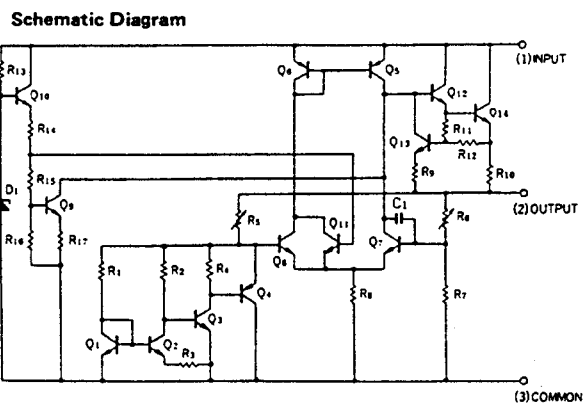
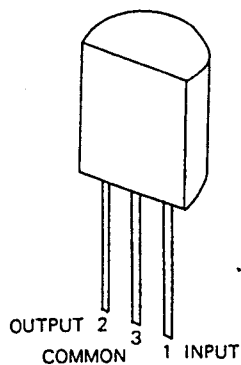
***NJM4560D (Dual Op. Amplifiers) [JRC]**



***TA7089P (Bipolar Monolithic Linear Amplifier) [TOSHIBA]**

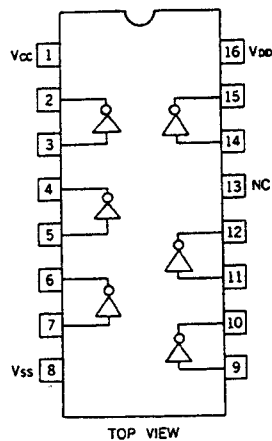


***TA78L005AP (Voltage Regulator) [TOSHIBA]**
TA78L012AP

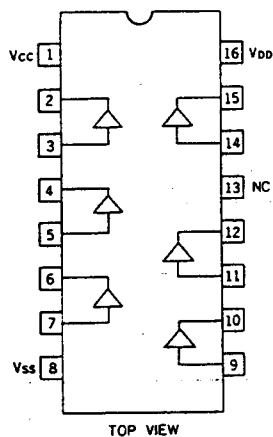


TA78L005AP → 5 V
TA78L012AP → 12 V

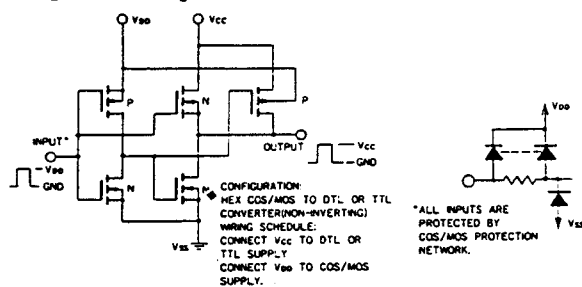
***TA4009BP (Hex Buffer/Converter) [TOSHIBA]**



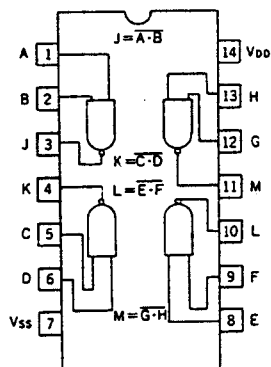
***TC4010BP (Hex Buffer/Converter) [TOSHIBA]**



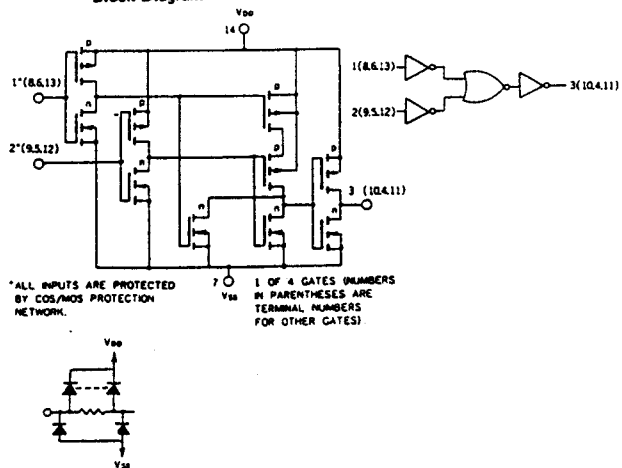
Schematic Diagram



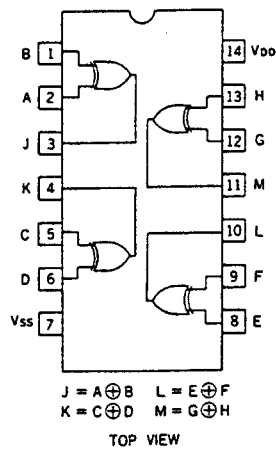
***TC4011BP (Quadruple 2-input NAND Gate) [TOSHIBA]**



Block Diagram



*TC4030BP (Quadruple Exclusive-OR Gate) [TOSHIBA]

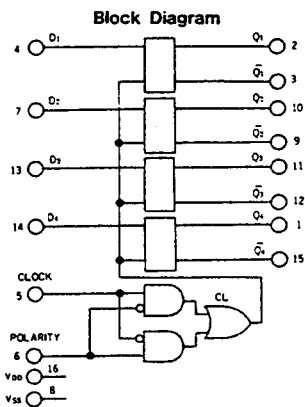
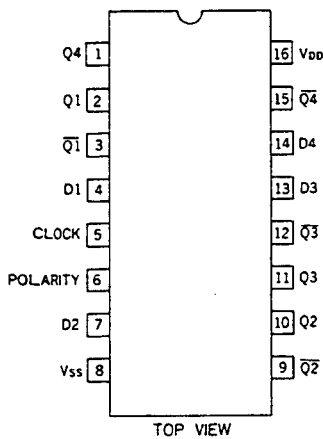


TRUTH TABLE

| A | B | J |
|---|---|---|
| 0 | 0 | 0 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 0 |

WHERE "1"=HIGH LEVEL
"0"=LOW LEVEL

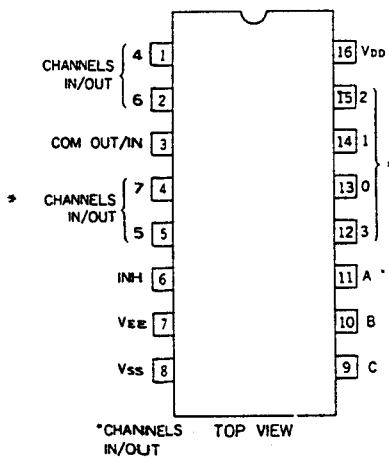
*TC4042BP (Quadruple Clock "D" Latch) [TOSHIBA]



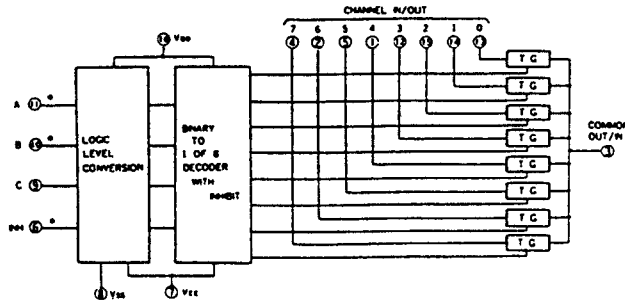
TRUTH TABLE

| CLOCK | POLARITY | Q |
|-------|----------|-------|
| 0 | 0 | D |
| | 0 | LATCH |
| 1 | 1 | D |
| | 1 | LATCH |

*TC4051BP (Single 8-Channel Multiplexer/Demultiplexer) [TOSHIBA]



Block Diagram

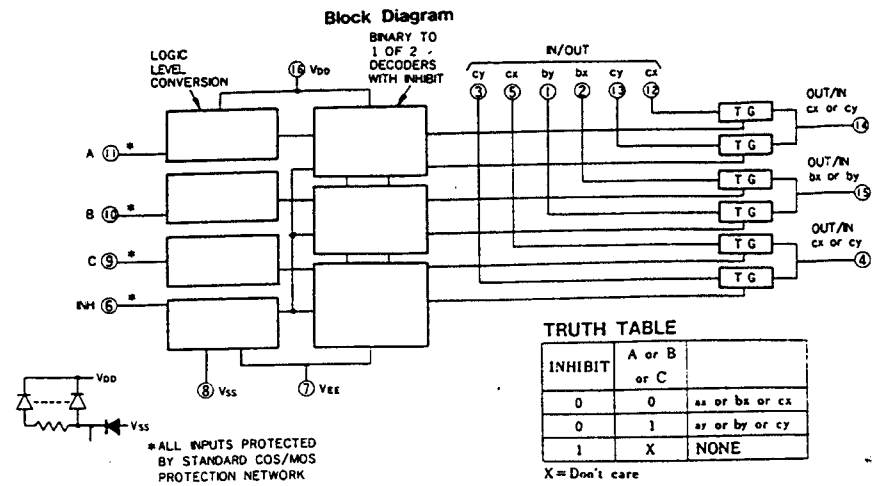
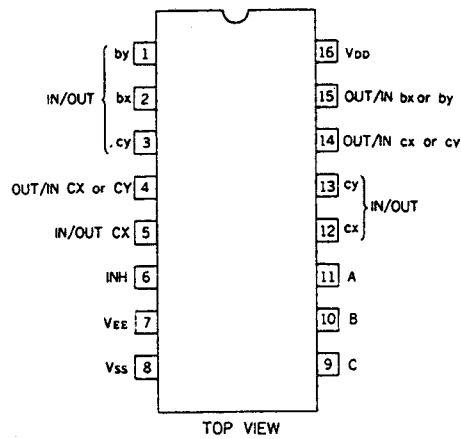


TRUTH TABLE

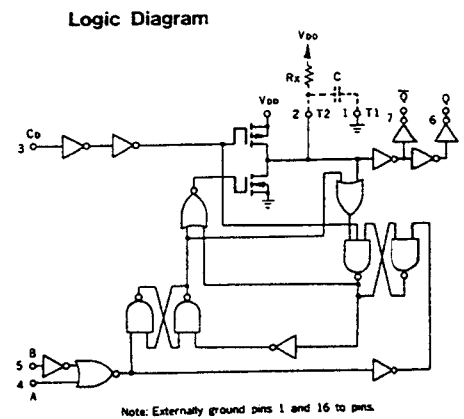
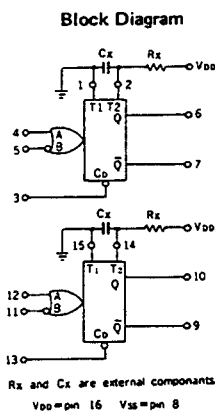
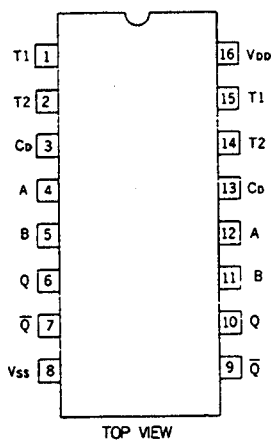
| INPUT STATES | | | | "ON" CHANNEL(S) |
|--------------|---|---|---|-----------------|
| INHIBIT | C | B | A | |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 |
| 0 | 0 | 1 | 0 | 2 |
| 0 | 0 | 1 | 1 | 3 |
| 0 | 1 | 0 | 0 | 4 |
| 0 | 1 | 0 | 1 | 5 |
| 0 | 1 | 1 | 0 | 6 |
| 0 | 1 | 1 | 1 | 7 |
| 1 | X | X | X | NONE |

X=Don't care

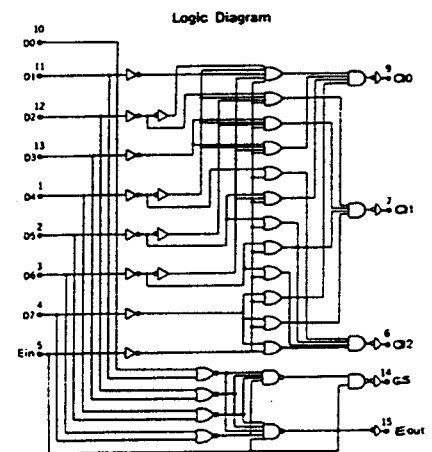
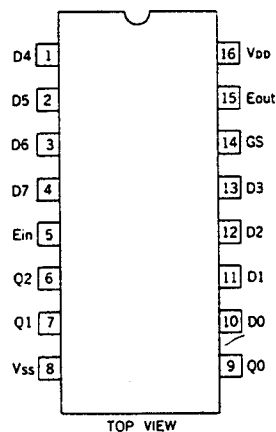
***TC4053BP (Triple-2 Channel Multiplexer/Demultiplexer) [TOSHIBA]**



***TC4528BP (Dual Monostable Multivibrator) [TOSHIBA]**



***TC4532BP (8-Bit Priority Encoder) [TOSHIBA]**

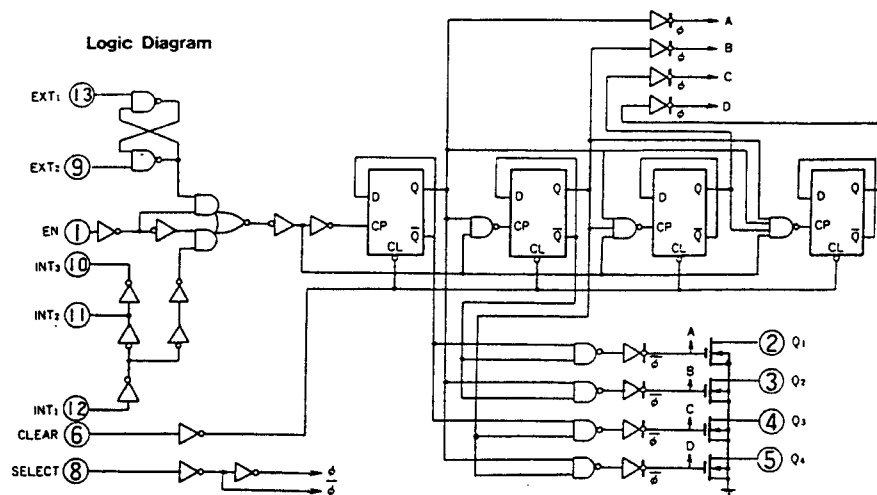
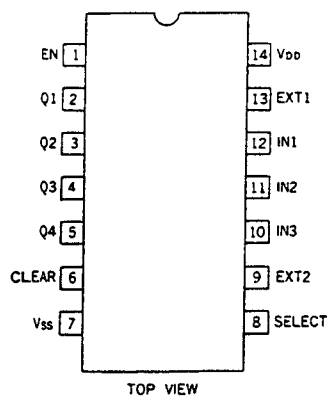


TRUTH TABLE

| INPUT | | | | | | | | | OUTPUT | | | | |
|-----------------|----|----|----|----|----|----|----|----|--------|----|----|----|------------------|
| E _{in} | D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 | GS | Q2 | Q1 | Q0 | E _{out} |
| 0 | x | x | x | x | x | x | x | x | 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1 | 1 | x | x | x | x | x | x | x | 1 | 1 | 1 | 1 | 0 |
| 1 | 0 | 1 | x | x | x | x | x | x | 1 | 1 | 1 | 0 | 0 |
| 1 | 0 | 0 | 1 | x | x | x | x | x | 1 | 1 | 0 | 1 | 0 |
| 1 | 0 | 0 | 0 | 1 | x | x | x | x | 1 | 1 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 1 | x | x | x | 1 | 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 | 0 | 0 | 1 | x | x | 1 | 0 | 1 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | x | 1 | 0 | 0 | 1 | 0 |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |

X = Don't Care

***TC5018P (Binary Counters) [TOSHIBA]**

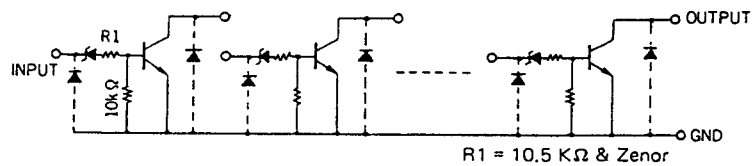
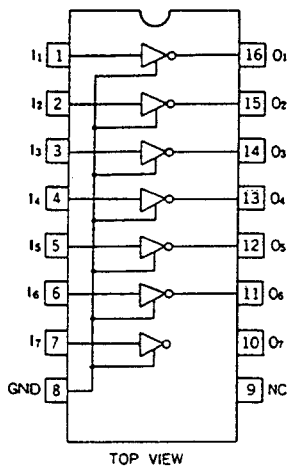


TRUTH TABLE

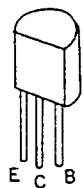
| INPUTS | | | | | | OUTPUTS | | | |
|-----------------|------------------|------------------|----|--------|-------|----------------|----------------|----------------|----------------|
| IN ₁ | EXT ₁ | EXT ₂ | EN | SELECT | CLEAR | Q ₁ | Q ₂ | Q ₃ | Q ₄ |
| * | CP | CP | L | L | L | S | S | S | S |
| CP | * | * | H | L | L | S | S | S | S |
| * | CP | CP | L | H | L | C | C | C | C |
| CP | * | * | H | H | L | C | C | C | C |
| * | * | * | * | L | H | L | H | H | H |
| * | * | * | * | H | H | L | L | L | L |

C : COUNT
 S : SCAN
 CP: CLOCK PLUSE
 *: "H" or "L"

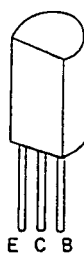
***TD62502P (Transistor Array) [TOSHIBA]**



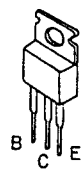
*Tr.



2SA564R
 2SC828R
 2SC829C
 2SA838C
 2SC752GY



2SC1509R



2SB856C
 2SC1061B

SECTION 8 ELECTRICAL PARTS LIST

1. IMPORTANT SAFETY NOTICE

Parts identified by the Δ symbol are critical for safety. Replace with parts number specified. For maximum reliability and performance, all other replacement parts should be identical to those specified.

2. Abbreviations in this list are as follows:

RESISTORS — All resistance values are in ohms (Ω).

K : 1 000
M : 1 000 000
CR : Carbon Resistor
Comp. R: Composition Resistor
WR : Wire Wound Resistor
OMR : Oxide Metal Film Resistor
VR : Variable Resistor (Potentiometer)
MFR : Metal Film Resistor

CAPACITORS — All capacitance values are in μ F, unless otherwise indicated.

P : μ F
C Cap : Ceramic Capacitor
E Cap : Electrolytic Capacitor
FM Cap : Film Mica Capacitor
MM Cap : Metalized Mylar Capacitor
MP Cap : Metalized Paper Capacitor
MY Cap : Mylar Capacitor
NP Cap : Non-polar Capacitor
PC Cap : Polycarbonate Capacitor
PP Cap : Poly Pro Capacitor
PS Cap : Polystyrol Capacitor
T Cap : Tantalum Capacitor
TR Cap : Trimmer Capacitor

Tolerances of resistors or capacitors are as follows:

M : $\pm 20\%$
K : $\pm 10\%$
J : $\pm 5\%$
G : $\pm 2\%$
F : $\pm 1\%$

8.1 MAIN UNIT

8.1.1 CP Board Ass'y SCK1040-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-----------|------------|-------------|
| IC 1 | TC4051BP | I.C. | TOSHIBA |
| IC 2 | " | " | " |
| IC 3 | " | " | " |
| IC 4 | " | " | " |
| IC 5 | " | " | " |
| IC 6 | " | " | " |
| IC 7 | " | " | " |
| IC 8 | " | " | " |
| IC 9 | TC4042BP | " | " |
| IC10 | " | " | " |
| IC11 | " | " | " |
| IC12 | TC4053BP | " | " |
| IC13 | TC4042BP | " | " |
| IC14 | " | " | " |
| IC15 | TC4009UBP | " | " |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| Q 2 | " | " | " |
| Q 3 | " | " | " |
| Q 4 | " | " | " |
| Q 5 | " | " | " |
| Q 6 | " | " | " |
| Q 7 | " | " | " |
| Q 8 | " | " | " |
| Q 9 | " | " | " |
| Q10 | " | " | " |
| Q11 | " | " | " |
| Q12 | " | " | " |
| Q13 | " | " | " |
| Q14 | " | " | " |
| Q15 | " | " | " |
| Q16 | " | " | " |
| Q17 | " | " | " |
| Q18 | " | " | " |
| Q19 | " | " | " |
| Q20 | " | " | " |
| Q21 | " | " | " |
| Q22 | " | " | " |
| Q23 | " | " | " |
| Q24 | " | " | " |
| Q25 | " | " | " |
| Q26 | " | " | " |
| Q27 | " | " | " |
| Q28 | " | " | " |
| Q29 | " | " | " |
| Q30 | " | " | " |
| Q31 | " | " | " |
| Q32 | " | " | " |
| Q33 | " | " | " |
| Q34 | " | " | " |
| Q35 | " | " | " |
| Q36 | " | " | " |
| Q37 | " | " | " |
| Q38 | " | " | " |
| Q39 | " | " | " |
| Q40 | " | " | " |
| Q41 | " | " | " |
| Q42 | " | " | " |
| Q43 | " | " | " |
| Q44 | " | " | " |
| Q45 | " | " | " |
| Q46 | " | " | " |
| Q47 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|----------|---------------|-------------|
| Q48 | 2SC828R | Transistor | MATSUSHITA |
| Q49 | " | " | " |
| Q50 | " | " | " |
| Q51 | " | " | " |
| Q52 | " | " | " |
| Q53 | " | " | " |
| Q54 | " | " | " |
| Q55 | " | " | " |
| Q56 | " | " | " |
| Q58 | " | " | " |
| Q59 | " | " | " |
| Q60 | " | " | " |
| Q61 | " | " | " |
| Q62 | " | " | " |
| Q63 | " | " | " |
| Q64 | " | " | " |
| Q65 | " | " | " |
| Q66 | " | " | " |
| Q67 | " | " | " |
| Q68 | 2SC829C | " | " |
| Q69 | 2SC1509R | " | " |
| Q70 | " | " | " |
| Q71 | " | " | " |
| Q72 | " | " | " |
| Q73 | " | " | " |
| Q74 | " | " | " |
| Q75 | 2SA838C | Transistor | NEC |
| Q76 | 2SC828R | " | MATSUSHITA |
| Q77 | " | " | " |
| Q78 | " | " | " |
| Q79 | " | " | " |
| Q80 | " | " | " |
| Q81 | " | " | " |
| Q82 | " | " | " |
| Q83 | 2SA838C | Transistor | NEC |
| Q84 | 2SC828R | " | MATSUSHITA |
| Q85 | " | " | " |
| Q86 | " | " | " |
| Q90 | 2SA838C | " | NEC |
| D 1 | MA165 | Silicon Diode | MATSUSHITA |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | " | " | " |
| D 6 | " | " | " |
| D 7 | " | " | " |
| D 8 | " | " | " |
| D 9 | " | " | " |
| D10 | " | " | " |
| D11 | " | " | " |
| D12 | " | " | " |
| D13 | " | " | " |
| D14 | " | " | " |
| D15 | " | " | " |
| D16 | " | " | " |
| D17 | " | " | " |
| D18 | " | " | " |
| D19 | " | " | " |
| D20 | " | " | " |
| D21 | " | " | " |
| D22 | " | " | " |
| D23 | " | " | " |
| D24 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|---------------|----------------|
| D25 | MA165 | Silicon Diode | MATSUSHITA |
| D26 | " | " | " |
| D27 | " | " | " |
| D28 | " | " | " |
| D29 | " | " | " |
| D30 | " | " | " |
| D31 | " | " | " |
| D32 | " | " | " |
| D33 | " | " | " |
| D34 | " | " | " |
| D35 | " | " | " |
| D36 | " | " | " |
| D37 | " | " | " |
| D38 | " | " | " |
| D39 | " | " | " |
| D40 | " | " | " |
| D41 | " | " | " |
| D42 | " | " | " |
| ZD 1 | HZ16L2 | Zener Diode | HITACHI (16 V) |
| ZD 2 | " | " | " |
| ZD 3 | " | " | " |
| ZD 4 | " | " | " |
| ZD 5 | HZ12L1L | Zener Diode | HITACHI (12 V) |
| R 1 | QRD167J-331 | CR | 330 1/6 W J |
| R 2 | " -473 | " | 47 K " " |
| R 3 | " -473 | " | 47 K " " |
| R 4 | " -152 | " | 1.5 K " " |
| R 5 | " -331 | " | 330 " " |
| R 6 | " | " | " |
| R 7 | QRD167J-823 | CR | 82 K 1/6 W J |
| R 8 | " -331 | " | 330 " " |
| R 9 | " | " | " |
| R10 | QRD167J-823 | CR | 82 K 1/6 W J |
| R11 | " -331 | " | 330 " " |
| R12 | " | " | " |
| R13 | QRD167J-823 | CR | 82 K 1/6 W J |
| R14 | " -331 | " | 330 " " |
| R15 | " | " | " |
| R16 | QRD167J-823 | CR | 82 K 1/6 W J |
| R17 | " -331 | " | 330 " " |
| R18 | " -473 | " | 47 K " " |
| R19 | " -473 | " | 47 K " " |
| R20 | " -152 | " | 1.5 K " " |
| R21 | " -331 | " | 330 " " |
| R22 | " | " | " |
| R23 | QRD167J-823 | CR | 82 K 1/6 W J |
| R24 | " -331 | " | 330 " " |
| R25 | " | " | " |
| R26 | QRD167J-823 | CR | 82 K 1/6 W J |
| R27 | " -331 | " | 330 " " |
| R28 | " | " | " |
| R29 | QRD167J-823 | CR | 82 K 1/6 W J |
| R30 | " -331 | " | 330 " " |
| R31 | " | " | " |
| R32 | QRD167J-823 | CR | 82 K 1/6 W J |
| R33 | " -331 | " | 330 " " |
| R34 | " -473 | " | 47 K " " |
| R35 | " -473 | " | 47 K " " |
| R36 | " -152 | " | 1.5 K " " |
| R37 | " -331 | " | 330 " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|--------------|
| R38 | " | " | " |
| R39 | QRD167J-823 | CR | 82 K 1/6 W J |
| R40 | " -331 | " | 330 " " |
| R41 | " | " | " |
| R42 | QRD167J-823 | CR | 82 K 1/6 W J |
| R43 | " -331 | " | 330 " " |
| R44 | " | " | " |
| R45 | QRD167J-823 | CR | 82 K 1/6 W J |
| R46 | " -331 | " | 330 " " |
| R47 | " | " | " |
| R48 | QRD167J-823 | CR | 82 K 1/6 W J |
| R49 | " -331 | " | 330 " " |
| R50 | " -473 | " | 47 K " " |
| R51 | " -473 | " | 47 K " " |
| R52 | " -152 | " | 1.5 K " " |
| R53 | " -331 | " | 330 " " |
| R54 | " | " | " |
| R55 | QRD167J-823 | CR | 82 K 1/6 W J |
| R56 | " -331 | " | 330 " " |
| R57 | " | " | " |
| R58 | QRD167J-823 | CR | 82 K 1/6 W J |
| R59 | " -331 | " | 330 " " |
| R60 | " | " | " |
| R61 | QRD167J-823 | CR | 82 K 1/6 W J |
| R62 | " -331 | " | 330 " " |
| R63 | " | " | " |
| R64 | QRD167J-823 | CR | 82 K 1/6 W J |
| R65 | " -560 | " | 56 " " |
| R66 | " -560 | " | 56 " " |
| R67 | " -560 | " | 56 " " |
| R68 | " -560 | " | 56 " " |
| R69 | " -560 | " | 56 " " |
| R70 | " -102 | " | 1 K " " |
| R71 | " -102 | " | 1 K " " |
| R72 | " -102 | " | 1 K " " |
| R73 | " -102 | " | 1 K " " |
| R74 | " -560 | " | 56 " " |
| R75 | " -560 | " | 56 " " |
| R76 | " -560 | " | 56 " " |
| R77 | " -331 | " | 330 " " |
| R78 | " -473 | " | 47 K " " |
| R79 | " -473 | " | 47 K " " |
| R80 | " -152 | " | 1.5 K " " |
| R81 | " -331 | " | 330 " " |
| R82 | " | " | " |
| R83 | QRD167J-823 | CR | 82 K 1/6 W J |
| R84 | " -331 | " | 330 " " |
| R85 | " | " | " |
| R86 | QRD167J-823 | CR | 82 K 1/6 W J |
| R87 | " -331 | " | 330 " " |
| R88 | " | " | " |
| R89 | QRD167J-823 | CR | 82 K 1/6 W J |
| R90 | " -331 | " | 330 " " |
| R91 | " | " | " |
| R92 | QRD167J-823 | CR | 82 K 1/6 W J |
| R93 | " -331 | " | 330 " " |
| R94 | " -473 | " | 47 K " " |
| R95 | " -473 | " | 47 K " " |
| R96 | " -152 | " | 1.5 K " " |
| R97 | " -331 | " | 330 " " |
| R98 | " | " | " |
| R99 | QRD167J-823 | CR | 82 K 1/6 W J |
| R100 | " -331 | " | 330 " " |
| R101 | " | " | " |
| R102 | QRD167J-823 | CR | 82 K 1/6 W J |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|--------------|
| R103 | QRD167J-331 | CR | 330 1/6 W J |
| R104 | " | " | " |
| R105 | QRD167J-823 | CR | 82 K 1/6 W J |
| R106 | " -331 | " | 330 " " |
| R107 | " | " | " |
| R108 | QRD167J-823 | CR | 82 K 1/6 W J |
| R109 | " | " | " |
| R110 | QRD167J-331 | CR | 330 1/6 W J |
| R111 | " -473 | " | 47 K " " |
| R112 | " -473 | " | 47 K " " |
| R113 | " -152 | " | 1.5 K " " |
| R114 | " -331 | " | 330 " " |
| R115 | " | " | " |
| R116 | QRD167J-823 | CR | 82 K 1/6 W J |
| R117 | " -331 | " | 330 " " |
| R118 | " | " | " |
| R119 | QRD167J-823 | CR | 82 K 1/6 W J |
| R120 | " -331 | " | 330 " " |
| R121 | " | " | " |
| R122 | QRD167J-823 | CR | 82 K 1/6 W J |
| R123 | " -331 | " | 330 " " |
| R124 | " | " | " |
| R125 | QRD167J-823 | CR | 82 K 1/6 W J |
| R126 | " | " | " |
| R127 | QRD167J-331 | CR | 330 1/6 W J |
| R128 | " -473 | " | 47 K " " |
| R129 | " -473 | " | 47 K " " |
| R130 | " -152 | " | 1.5 K " " |
| R131 | " -331 | " | 330 " " |
| R132 | " | " | " |
| R133 | QRD167J-823 | CR | 82 K 1/6 W J |
| R134 | " -331 | " | 330 " " |
| R135 | " | " | " |
| R136 | QRD167J-823 | CR | 82 K 1/6 W J |
| R137 | " -331 | " | 330 " " |
| R138 | " | " | " |
| R139 | QRD167J-823 | CR | 82 K 1/6 W J |
| R140 | " -331 | " | 330 " " |
| R141 | " | " | " |
| R142 | QRD167J-823 | CR | 82 K 1/6 W J |
| R143 | " | " | " |
| R144 | QRD167J-331 | CR | 330 1/6 W J |
| R145 | " -473 | " | 47 K " " |
| R146 | " -473 | " | 47 K " " |
| R147 | " -152 | " | 1.5 K " " |
| R148 | " -102 | " | 1 K " " |
| R149 | " -331 | " | 330 " " |
| R150 | " | " | " |
| R151 | QRD167J-823 | CR | 82 K 1/6 W J |
| R152 | " -331 | " | 330 " " |
| R153 | " | " | " |
| R154 | QRD167J-823 | CR | 82 K 1/6 W J |
| R155 | " -331 | " | 330 " " |
| R156 | " | " | " |
| R157 | QRD167J-823 | CR | 82 K 1/6 W J |
| R158 | " -102 | " | 1 K " " |
| R159 | " -560 | " | 56 " " |
| R160 | " -560 | " | 56 " " |
| R161 | " -560 | " | 56 " " |
| R162 | " -102 | " | 1 K " " |
| R163 | " -331 | " | 330 " " |
| R164 | " -473 | " | 47 K " " |
| R165 | " -473 | " | 47 K " " |
| R166 | " -152 | " | 1.5 K " " |
| R167 | " -331 | " | 330 " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R168 | ORD167J-823 | CR | 82 K 1/6 W J |
| R169 | " | " | " |
| R170 | ORD167J-102 | CR | 1 K 1/6 W J |
| R171 | " -102 | " | 1 K " " |
| R172 | " -331 | " | 330 " " |
| R173 | " -473 | " | 47 K " " |
| R174 | " -473 | " | 47 K " " |
| R175 | " -152 | " | 1.5 K " " |
| R176 | " -331 | " | 330 " " |
| R177 | " | " | " |
| R178 | ORD167J-823 | CR | 82 K 1/6 W J |
| R179 | " -331 | " | 330 " " |
| R180 | " -473 | " | 47 K " " |
| R181 | " -473 | " | 47 K " " |
| R182 | " -182 | " | 1.8 K " " |
| R183 | " -331 | " | 330 " " |
| R184 | " | " | " |
| R185 | ORD167J-823 | CR | 82 K 1/6 W J |
| R186 | " -331 | " | 330 " " |
| R187 | " -473 | " | 47 K " " |
| R188 | " -473 | " | 47 K " " |
| R189 | " -152 | " | 1.5 K " " |
| R190 | " -331 | " | 330 " " |
| R191 | " | " | " |
| R192 | ORD167J-823 | CR | 82 K 1/6 W J |
| R193 | " -331 | " | 330 " " |
| R194 | " -473 | " | 47 K " " |
| R195 | " -473 | " | 47 K " " |
| R196 | " -152 | " | 1.5 K " " |
| R197 | " -331 | " | 330 " " |
| R198 | " | " | " |
| R199 | ORD167J-823 | CR | 82 K 1/6 W J |
| R200 | " -331 | " | 330 " " |
| R201 | " | " | " |
| R202 | ORD167J-823 | CR | 82 K 1/6 W J |
| R203 | " -331 | " | 330 " " |
| R204 | " | " | " |
| R205 | ORD167J-823 | CR | 82 K 1/6 W J |
| R206 | " -332 | " | 3.3 K " " |
| R207 | " -152 | " | 1.5 K " " |
| R208 | " -331 | " | 330 " " |
| R209 | " -153 | " | 15 K " " |
| R210 | " -560 | " | 56 " " |
| R211 | " -103 | " | 10 K " " |
| R212 | SCV0047-501 | VR | 500 |
| R213 | ORD167J-122 | CR | 1.2 K 1/6 W J |
| R214 | " -121 | " | 120 " " |
| R215 | SCV0047-201 | VR | 200 |
| R216 | ORD167J-472 | CR | 4.7 K 1/6 W J |
| R217 | " -272 | " | 2.7 K " " |
| R218 | " -152 | " | 1.5 K " " |
| R219 | " -272 | " | 2.7 K " " |
| R220 | " -472 | " | 4.7 K " " |
| R221 | " -101 | " | 100 " " |
| R222 | " -472 | " | 4.7 K " " |
| R223 | " -152 | " | 1.5 K " " |
| R224 | " -821 | " | 820 " " |
| R225 | " -182 | " | 1.8 K " " |
| R226 | " -101 | " | 100 " " |
| R227 | GC31868-270 | MFR | 27 1/4 W F |
| R228 | " -270 | " | 27 " " |
| R229 | ORD167J-103 | CR | 10 K 1/6 W J |
| R230 | " -104 | " | 100 K " " |
| R231 | " -104 | " | 100 K " " |
| R232 | " -102 | " | 1 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R233 | ORD167J-104 | CR | 100 K 1/6 W J |
| R234 | " -103 | " | 10 K " " |
| R235 | " -103 | " | 10 K " " |
| R236 | " -473 | " | 47 K " " |
| R237 | " -123 | " | 12 K " " |
| R238 | " -473 | " | 47 K 1/6 W J |
| R239 | " -102 | " | 1 K " " |
| R240 | " -103 | " | 10 K " " |
| R241 | " -473 | " | 47 K " " |
| R242 | " -103 | " | 10 K " " |
| R243 | " -103 | " | 10 K " " |
| R244 | " -102 | " | 1 K " " |
| R245 | " -104 | " | 100 K " " |
| R246 | " -102 | " | 1 K " " |
| R247 | " -273 | " | 27 K " " |
| R248 | " -152 | " | 1.5 K " " |
| R249 | " -331 | " | 330 " " |
| R250 | " -680 | " | 68 " " |
| R251 | " | " | " |
| R252 | " | " | " |
| R253 | ORD167J-680 | CR | 68 1/6 W J |
| R254 | " | " | " |
| R255 | " | " | " |
| R256 | " | " | " |
| R257 | " | " | " |
| R258 | " | " | " |
| R259 | ORD167J-680 | CR | 68 1/6 W J |
| R260 | " -680 | " | 68 " " |
| R261 | " -273 | " | 27 K " " |
| R262 | " -152 | " | 1.5 K " " |
| R263 | " -331 | " | 330 " " |
| R264 | " -680 | " | 68 " " |
| R265 | " -123 | " | 12 K " " |
| R266 | " | " | " |
| R267 | ORD167J-680 | CR | 68 1/6 W J |
| R268 | " | " | " |
| R269 | " | " | " |
| R270 | " | " | " |
| R271 | " | " | " |
| R272 | " | " | " |
| R273 | ORD167J-680 | CR | 68 1/6 W J |
| R274 | " -680 | " | 68 " " |
| R275 | " -273 | " | 27 K " " |
| R276 | " -152 | " | 1.5 K " " |
| R277 | " -331 | " | 330 " " |
| R278 | " -680 | " | 68 " " |
| R279 | " -123 | " | 12 K " " |
| R280 | " -680 | " | 68 " " |
| R281 | " | " | " |
| R282 | " | " | " |
| R283 | " | " | " |
| R284 | " | " | " |
| R285 | " | " | " |
| R286 | " | " | " |
| R287 | ORD167J-680 | CR | 68 1/6 W J |
| R288 | " -680 | " | 68 " " |
| R289 | " -680 | " | 68 " " |
| R290 | " -680 | " | 68 " " |
| R291 | " -680 | " | 68 " " |
| R292 | " -273 | " | 27 K " " |
| R293 | " -152 | " | 1.5 K " " |
| R294 | " -331 | " | 330 " " |
| R295 | " -471 | " | 470 " " |
| R296 | " -123 | " | 12 K " " |
| R297 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R298 | ORD167J-821 | CR | 820 1/6 W J |
| R299 | " -390 | " | 39 " " |
| R300 | SCV0047-501 | VR | 500 |
| R301 | ORD167J-102 | CR | 1 K 1/6 W J |
| R302 | " -101 | " | 100 " " |
| R303 | " -152 | " | 1.5 K " " |
| R304 | " -680 | " | 68 " " |
| R305 | " -680 | " | 68 " " |
| R306 | " -680 | " | 68 " " |
| R307 | " -104 | " | 100 K " " |
| R308 | " -473 | " | 47 K " " |
| R309 | " -101 | " | 100 " " |
| R310 | " -101 | " | 100 " " |
| R311 | " -101 | " | 100 " " |
| R312 | " -101 | " | 100 " " |
| R313 | " -101 | " | 100 " " |
| R314 | " -101 | " | 100 " " |
| R315 | " -101 | " | 100 " " |
| R316 | " -101 | " | 2.2 K " " |
| R401 | ORD167J-222 | CR | 2.2 K 1/6 W J |
| R402 | " -332 | " | 3.3 K " " |
| R403 | " -102 | " | 1 K " " |
| R404 | " -103 | " | 10 K " " |
| C 1 | QET61EM-107 | E Cap | 100 25 V |
| C 2 | QET41ER-107 | " | 100 " " |
| C 3 | QET61EM-107 | " | 100 " " |
| C 4 | " -107 | " | 100 " " |
| C 5 | " -107 | " | 100 " " |
| C 6 | " -107 | " | 100 " " |
| C 7 | " -107 | " | 100 " " |
| C 8 | " -107 | " | 100 " " |
| C 9 | " -107 | " | 100 " " |
| C10 | " -107 | " | 100 " " |
| C11 | " -107 | " | 100 " " |
| C12 | " -107 | " | 100 " " |
| C13 | " -107 | " | 100 " " |
| C14 | " -107 | " | 100 " " |
| C15 | " -107 | " | 100 " " |
| C16 | " -107 | " | 100 " " |
| C17 | " -107 | " | 100 " " |
| C18 | " -107 | " | 100 " " |
| C19 | " -107 | " | 100 " " |
| C20 | " -107 | " | 100 " " |
| C21 | " -107 | " | 100 " " |
| C22 | " -107 | " | 100 " " |
| C23 | " -107 | " | 100 " " |
| C24 | " -107 | " | 100 " " |
| C25 | QCS31HJ-100 | C Cap | 10 P 50 V |
| C26 | QET61EM-107 | E Cap | 100 25 V |
| C27 | " -107 | " | 100 " " |
| C28 | " -107 | " | 100 " " |
| C29 | QCS31HJ-221 | C Cap | 220 P 50 V |
| C30 | " -221 | " | 220 P " " |
| C31 | " -221 | " | 220 P " " |
| C32 | " -221 | " | 220 P " " |
| C33 | " -221 | " | 220 P " " |
| C34 | QET61EM-107 | E Cap | 100 25 V |
| C35 | QFM31HK-104 | MY Cap | 0.1 50 V |
| C36 | QET41ER-107 | E Cap | 100 25 V |
| C37 | " | " | " |
| C38 | QET61EM-107 | E Cap | 100 25 V |
| C39 | " | " | " |
| C40 | QET61EM-107 | E Cap | 100 25 V |
| C41 | QFM31HK-104 | MY Cap | 0.1 50 V |
| C42 | QET41ER-107 | E Cap | 100 25 V |
| C43 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|------------|-------------|
| C44 | QET61EM-107 | E Cap | 100 25 V |
| C45 | QET60JM-477 | " | 470 6.3 V |
| C46 | " | " | " |
| C47 | QFM31HK-104 | MY Cap | 0.1 50 V |
| C48 | QET41ER-107 | E Cap | 100 25 V |
| C49 | QCF31EZ-103 | C Cap | 0.01 " " |
| C50 | QET61EM-107 | E Cap | 100 " " |
| C51 | " | " | " |
| C52 | QET41ER-107 | E Cap | 100 25 V |
| C53 | QCF31EZ-103 | C Cap | 0.01 " " |
| C54 | QET61EM-107 | E Cap | 100 " " |
| C55 | QET40JR-477 | E Cap | 470 " " |
| C56 | QET61EM-107 | E Cap | 100 25 V |
| C57 | " | " | " |
| C58 | " | " | " |
| C59 | " | " | " |
| C60 | QCS31HJ-221 | C Cap | 10 P 50 V |
| TP4-TP9 | SCV0025-102 | Test Point | |
| | SCV0304-00P | Connector | |
| | SCV0296-001 | Card Pra. | |

8.1.2 VIDEO Board Ass'y SCK1041-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|----------|------------|-------------|
| IC 1 | MC1495L | I.C. | MOTOROLA |
| IC 2 | TC4053BP | " | TOSHIBA |
| IC 3 | MC1495L | " | MOTOROLA |
| IC 4 | " | " | " |
| IC 5 | " | " | " |
| IC 6 | " | " | " |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| Q 2 | " | " | " |
| Q 3 | " | " | " |
| Q 4 | 2SA564R | " | " |
| Q 5 | 2SC752GY | " | TOSHIBA |
| Q 6 | 2SC828R | " | MATSUSHITA |
| Q 7 | " | " | " |
| Q 8 | 2SC752GY | " | TOSHIBA |
| Q 9 | 2SC828R | " | MATSUSHITA |
| Q10 | 2SA564R | " | " |
| Q11 | 2SC828R | " | " |
| Q12 | " | " | " |
| Q13 | " | " | " |
| Q14 | " | " | " |
| Q15 | " | " | " |
| Q16 | 2SC752GY | " | TOSHIBA |
| Q17 | 2SC828R | " | MATSUSHITA |
| Q18 | 2SA564R | " | " |
| Q19 | 2SC828R | " | " |
| Q20 | " | " | " |
| Q21 | " | " | " |
| Q22 | " | " | " |
| Q23 | " | " | " |
| Q24 | 2SA564R | " | " |
| Q25 | 2SC828R | " | " |
| Q26 | " | " | " |
| Q27 | " | " | " |
| Q28 | " | " | " |
| Q29 | 2SC752GY | " | TOSHIBA |
| Q30 | 2SC828R | " | MATSUSHITA |
| Q31 | 2SA564R | " | " |
| Q32 | 2SC828R | " | " |
| Q33 | " | " | " |
| Q34 | " | " | " |
| Q35 | " | " | " |
| Q36 | 2SC752GY | " | TOSHIBA |
| Q37 | 2SC828R | " | MATSUSHITA |
| Q38 | 2SA564R | " | " |
| Q39 | 2SC828R | " | " |
| Q40 | " | " | " |
| Q41 | " | " | " |
| Q42 | " | " | " |
| Q43 | " | " | " |
| Q44 | " | " | " |
| Q45 | " | " | " |
| Q46 | 2SC752GY | " | TOSHIBA |
| Q47 | 2SC828R | " | MATSUSHITA |
| Q48 | 2SC829C | " | " |
| Q49 | 2SA564R | " | " |
| Q50 | 2SC828R | " | " |
| Q51 | 2SA564R | " | " |
| Q52 | 2SC1509R | " | " |
| Q53 | " | " | " |
| Q54 | 2SC828R | " | " |
| Q55 | 2SA564R | " | " |
| Q56 | 2SC828R | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|---------------|----------------|
| Q57 | 2SC752GY | Transistor | TOSHIBA |
| Q58 | 2SC828R | " | MATSUSHITA |
| Q59 | " | " | " |
| Q60 | " | " | " |
| Q61 | 2SC752GY | " | TOSHIBA |
| Q62 | 2SC828R | " | MATSUSHITA |
| Q63 | 2SA564R | " | " |
| Q64 | " | " | " |
| Q65 | 2SA564R | Transistor | MATSUSHITA |
| Q66 | " | " | " |
| Q67 | 2SC828R | " | " |
| Q68 | " | " | " |
| Q69 | " | " | " |
| Q70 | 2SA564R | " | " |
| Q71 | 2SC828R | " | " |
| Q72 | 2SC752GY | " | TOSHIBA |
| Q73 | 2SA564R | " | MATSUSHITA |
| Q74 | 2SC828R | " | " |
| Q83 | 2SA564R | Transistor | MATSUSHITA |
| ZD 1 | " | " | " |
| ZD 2 | HZ11A3L | Zener Diode | HITACHI (11 V) |
| ZD 3 | HZ6B1L | " | " (6 V) |
| ZD 4 | " | " | " |
| ZD 5 | HZ11A3L | Zener Diode | HITACHI (11 V) |
| ZD 6 | " | " | " |
| ZD 7 | HZ11A3L | Zener Diode | HITACHI (11 V) |
| ZD 8 | " | " | " (11 V) |
| ZD 9 | HZ12A1L | " | " (12 V) |
| ZD10 | HZ11A3L | " | " (11 V) |
| ZD11 | " | " | " |
| D 1 | MA165 | Silicon Diode | MATSUSHITA |
| D 2 | " | " | " |
| R 1 | QRD167J-102 | CR | 1 K 1/6 W J |
| R 2 | " -101 | " | 100 " " |
| R 3 | " -101 | " | 100 " " |
| R 4 | " -272 | " | 2.7 K " " |
| R 5 | " -272 | " | 2.7 K " " |
| R 6 | " -472 | " | 4.7 K " " |
| R 7 | " -393 | " | 39 K " " |
| R 8 | " -101 | " | 100 " " |
| R 9 | " -103 | " | 10 K " " |
| R10 | " -103 | " | 10 K " " |
| R11 | " -331 | " | 330 " " |
| R12 | " -102 | " | 1 K " " |
| R13 | " -101 | " | 100 " " |
| R14 | SCV0047-501 | VR | 500 |
| R15 | QRD167J-272 | CR | 2.7 K 1/6 W J |
| R16 | " -272 | " | 2.7 K " " |
| R17 | " -472 | " | 4.7 K " " |
| R18 | " -393 | " | 39 K " " |
| R19 | " -103 | " | 10 K " " |
| R20 | " -101 | " | 100 " " |
| R21 | " -103 | " | 10 K " " |
| R22 | " -331 | " | 330 " " |
| R23 | " -562 | " | 5.6 K " " |
| R24 | GC31868-152 | MFR | 1.5 K 1/4 W F |
| R25 | " -152 | " | 1.5 K " " |
| R26 | QRD167J-392 | CR | 3.9 K 1/6 W J |
| R27 | " -102 | " | 1 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R28 | QRD167J-332 | CR | 3.3 K 1/6 W J |
| R29 | " -103 | " | 10 K " " |
| R30 | " -562 | " | 5.6 K " " |
| R31 | " -272 | " | 2.7 K " " |
| R32 | " -101 | " | 100 " " |
| R33 | " -101 | " | 100 " " |
| R34 | " -560 | " | 56 " " |
| R35 | " -560 | " | 56 " " |
| R36 | " -272 | " | 2.7 K " " |
| R37 | " -682 | " | 6.8 K " " |
| R38 | " -102 | " | 1 K " " |
| R39 | " -101 | " | 100 " " |
| R40 | " | " | " |
| R41 | SCV0047-501 | VR | 500 |
| R42 | QRD167J-101 | CR | 100 1/6 W J |
| R43 | " -472 | " | 4.7 K " " |
| R44 | " -101 | " | 100 " " |
| R45 | " | " | " |
| R46 | SCV0047-501 | VR | 500 |
| R47 | QRD167J-101 | CR | 100 1/6 W J |
| R48 | " -472 | " | 4.7 K " " |
| R49 | " -182 | " | 1.8 K " " |
| R50 | " -101 | " | 100 " " |
| R51 | " -101 | " | 100 " " |
| R52 | " -561 | " | 560 " " |
| R53 | " -152 | " | 1.5 K " " |
| R54 | " -272 | " | 2.7 K " " |
| R55 | " -472 | " | 4.7 K " " |
| R56 | " -393 | " | 39 K " " |
| R57 | " -101 | " | 100 " " |
| R58 | " -272 | " | 2.7 K " " |
| R59 | " -101 | " | 100 " " |
| R60 | " -103 | " | 10 K " " |
| R61 | GC31868-822 | MFR | 8.2 K 1/4 W F |
| R62 | " -680 | " | 68 " " |
| R63 | " -680 | " | 68 " " |
| R64 | SCV0046-501 | VR | 500 |
| R65 | GC31868-332 | MFR | 3.3 K 1/4 W F |
| R66 | QRD167J-102 | CR | 1 K 1/6 W J |
| R67 | " -101 | " | 100 " " |
| R68 | SCV0047-501 | VR | 500 |
| R69 | QRD167J-272 | CR | 2.7 K 1/6 W J |
| R70 | " -101 | " | 100 " " |
| R71 | " -470 | " | 47 " " |
| R72 | " -272 | " | 2.7 K " " |
| R73 | SCV0046-501 | VR | 500 |
| R74 | QRD167J-103 | CR | 10 K 1/6 W J |
| R75 | " -152 | " | 1.5 K " " |
| R76 | " -823 | " | 82 K " " |
| R77 | " -823 | " | 82 K " " |
| R78 | " -104 | " | 100 K " " |
| R79 | " -102 | " | 1 K " " |
| R80 | " -272 | " | 2.7 K " " |
| R81 | " -393 | " | 39 K " " |
| R82 | " -472 | " | 4.7 K " " |
| R83 | SCV0046-501 | VR | 500 |
| R84 | QRD167J-101 | CR | 100 1/6 W J |
| R85 | SCV0047-501 | VR | 500 |
| R86 | QRD167J-272 | CR | 2.7 K 1/6 W J |
| R87 | " -103 | " | 10 K " " |
| R88 | " -101 | " | 100 " " |
| R89 | " -331 | " | 330 " " |
| R90 | " | " | " |
| R91 | QRD167J-102 | CR | 1 K 1/6 W J |
| R92 | " -562 | " | 5.6 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R93 | QRD167J-562 | CR | 5.6 K 1/6 W J |
| R94 | GC31868-152 | MFR | 1.5 K 1/4 W F |
| R95 | " -152 | " | 1.5 K " " |
| R96 | QRD167J-392 | CR | 3.9 K 1/6 W J |
| R97 | " -332 | " | 3.3 K " " |
| R98 | " -103 | " | 10 K " " |
| R99 | " -392 | " | 3.9 K " " |
| R100 | " -560 | " | 56 " " |
| R101 | " -560 | " | 56 " " |
| R102 | " -331 | " | 330 " " |
| R103 | " -391 | " | 390 " " |
| R104 | " -272 | " | 2.7 K " " |
| R105 | " -682 | " | 6.8 K " " |
| R106 | " -102 | " | 1 K " " |
| R107 | " -101 | " | 100 " " |
| R108 | " -101 | " | 100 " " |
| R109 | SCV0047-501 | VR | 500 |
| R110 | QRD167J-101 | CR | 100 1/6 W J |
| R111 | " | " | " |
| R112 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R113 | " -101 | " | 100 " " |
| R114 | " | " | " |
| R115 | QRD167J-101 | CR | 100 1/6 W J |
| R116 | SCV0047-501 | VR | 500 |
| R117 | QRD167J-101 | CR | 100 1/6 W J |
| R118 | " -472 | " | 4.7 K " " |
| R119 | " -182 | " | 1.8 K " " |
| R120 | " -101 | " | 100 " " |
| R121 | " -272 | " | 2.7 K " " |
| R122 | " -472 | " | 4.7 K " " |
| R123 | " -393 | " | 39 K " " |
| R124 | " -103 | " | 10 K " " |
| R125 | " -101 | " | 100 " " |
| R126 | " -472 | " | 4.7 K " " |
| R127 | " -101 | " | 100 " " |
| R128 | " -331 | " | 330 " " |
| R129 | " -472 | " | 4.7 K " " |
| R130 | " -472 | " | 4.7 K " " |
| R131 | " -102 | " | 1 K " " |
| R132 | " -272 | " | 2.7 K " " |
| R133 | " -103 | " | 10 K " " |
| R134 | " -393 | " | 39 K " " |
| R135 | " -103 | " | 10 K " " |
| R136 | " -101 | " | 100 " " |
| R137 | " -472 | " | 4.7 K " " |
| R138 | GC31868-102 | MFR | 1 K 1/4 W F |
| R139 | " -102 | " | 1 K " " |
| R140 | QRD167J-562 | CR | 5.6 K 1/6 W J |
| R141 | " -392 | " | 3.9 K " " |
| R142 | " -332 | " | 3.3 K " " |
| R143 | " -103 | " | 10 K " " |
| R144 | " -392 | " | 3.9 K " " |
| R145 | " -561 | " | 560 " " |
| R146 | " -561 | " | 560 " " |
| R147 | " -562 | " | 5.6 K " " |
| R148 | " -272 | " | 2.7 K " " |
| R149 | " -682 | " | 6.8 K " " |
| R150 | " -102 | " | 1 K " " |
| R151 | " -101 | " | 100 " " |
| R152 | " -101 | " | 100 " " |
| R153 | " -101 | " | 100 " " |
| R154 | " -101 | " | 100 " " |
| R155 | SCV0047-501 | VR | 500 |
| R156 | QRD167J-101 | CR | 100 1/6 W J |
| R157 | " -472 | " | 4.7 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R158 | QRD167J-101 | CR | 100 1/6 W J |
| R159 | SCV0047-501 | VR | 500 |
| R160 | QRD167J-101 | CR | 100 1/6 W J |
| R161 | " -182 | " | 1.8 K |
| R162 | " -272 | " | 2.7 K |
| R163 | " -682 | " | 6.8 K |
| R164 | " -102 | " | 1 K |
| R165 | " -182 | " | 1.8 K |
| R166 | SCV0047-501 | VR | 500 |
| R167 | " -501 | " | 500 |
| R168 | QRD167J-101 | CR | 100 1/6 W J |
| R169 | " -272 | " | 2.7 K |
| R170 | " | " | " |
| R171 | QRD167J-393 | CR | 39 K 1/6 W J |
| R172 | " -101 | " | 100 |
| R173 | " -103 | " | 10 K |
| R174 | " -103 | " | 10 K |
| R175 | " -273 | " | 27 K |
| R176 | " -153 | " | 15 K |
| R177 | " -222 | " | 2.2 K |
| R178 | " -102 | " | 1 K |
| R179 | " -390 | " | 39 |
| R180 | GC31868-101 | MFR | 100 1/4 W F |
| R181 | QRD167J-152 | CR | 1.5 K 1/6 W J |
| R182 | GC31868-101 | MFR | 100 1/4 W F |
| R183 | QRD167J-750 | CR | 75 1/6 W J |
| R184 | " -102 | " | 1 K |
| R185 | " -103 | " | 10 K |
| R186 | " -331 | " | 330 |
| R187 | " -332 | " | 3.3 K |
| R188 | " | " | " |
| R189 | QRD167J-562 | CR | 5.6 K 1/6 W J |
| R190 | " -560 | " | 56 |
| R191 | " -273 | " | 27 K |
| R192 | " -153 | " | 15 K |
| R193 | " -472 | " | 4.7 K |
| R194 | " -103 | " | 10 K |
| R195 | " -393 | " | 39 K |
| R196 | " -472 | " | 4.7 K |
| R197 | " -102 | " | 1 K |
| R198 | " -562 | " | 5.6 K |
| R199 | GC31868-152 | MFR | 1.5 K 1/4 W F |
| R200 | " -152 | " | 1.5 K |
| R201 | QRD167J-392 | CR | 3.9 K 1/6 W J |
| R202 | " -332 | " | 3.3 K |
| R203 | " -103 | " | 10 K |
| R204 | " -392 | " | 3.9 K |
| R205 | " -562 | " | 5.6 K |
| R206 | " -272 | " | 2.7 K |
| R207 | " -682 | " | 6.8 K |
| R208 | " -102 | " | 1 K |
| R209 | " -101 | " | 100 |
| R210 | " -101 | " | 100 |
| R211 | " -560 | " | 56 |
| R212 | " -561 | " | 560 |
| R213 | " | " | " |
| R214 | QRD167J-101 | CR | 100 1/6 W J |
| R215 | SCV0047-501 | VR | 500 |
| R216 | QRD167J-101 | CR | 100 1/6 W J |
| R217 | " -101 | " | 100 |
| R218 | " -101 | " | 100 |
| R219 | SCV0047-501 | VR | 500 |
| R220 | QRD167J-101 | CR | 100 1/6 W J |
| R221 | " -182 | " | 1.8 K |
| R222 | " -101 | " | 100 |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R223 | QRD167J-332 | CR | 3.3 K 1/6 W J |
| R224 | " -822 | " | 8.2 K |
| R225 | SCV0047-102 | VR | 1 K |
| R226 | QRD167J-332 | CR | 3.3 K 1/6 W J |
| R227 | SCV0046-101 | VR | 100 |
| R228 | GC31868-103 | MFR | 10 K 1/4 W F |
| R229 | " -330 | " | 33 |
| R230 | " -332 | " | 3.3 K |
| R231 | QRD167J-393 | CR | 39 K 1/6 W J |
| R232 | " -101 | " | 100 |
| R233 | " -103 | " | 10 K |
| R234 | " -272 | " | 2.7 K |
| R235 | " -102 | " | 1 K |
| R236 | " -101 | " | 100 |
| R237 | " -750 | " | 75 |
| R238 | " -272 | " | 2.7 K |
| R239 | " -103 | " | 10 K |
| R240 | " -393 | " | 39 K |
| R241 | " -103 | " | 10 K |
| R242 | " -101 | " | 100 |
| R243 | " -103 | " | 10 K |
| R244 | " -561 | " | 560 |
| R245 | " | " | " |
| R246 | QRD167J-331 | CR | 330 1/6 W J |
| R247 | " -472 | " | 4.7 K |
| R248 | " -103 | " | 10 K |
| R249 | " -101 | " | 100 |
| R250 | " -560 | " | 56 |
| R251 | " -562 | " | 5.6 K |
| R252 | " -332 | " | 3.3 K |
| R253 | " | " | " |
| R254 | QRD167J-392 | CR | 3.9 K 1/6 W J |
| R255 | " -101 | " | 100 |
| R256 | " -101 | " | 100 |
| R257 | " -561 | " | 560 |
| R258 | " -561 | " | 560 |
| R259 | " -562 | " | 5.6 K |
| R260 | " -101 | " | 100 |
| R261 | " -153 | " | 15 K |
| R262 | " -102 | " | 1 K |
| R263 | " | " | " |
| R264 | QRD167J-103 | CR | 10 K 1/6 W J |
| R300 | GC31868-471 | MFR | 470 1/4 W F |
| R301 | " -471 | " | 470 |
| R302 | " -471 | " | 470 |
| R303 | " -471 | " | 470 |
| R304 | QRD167J-105 | CR | 1 M 1/6 W J |
| R305 | " -105 | " | 1 M |
| R306 | " -125 | " | 1.2 M |
| R307 | " -185 | " | 1.8 M |
| R308 | " -274 | " | 270 K |
| R309 | " -472 | " | 4.7 K |
| R310 | " -103 | " | 10 K |
| C 1 | QET61EM-107 | E Cap | 100 25 V |
| C 2 | " -107 | " | 100 |
| C 3 | QCS31HJ-101 | C Cap | 10 P 50 V |
| C 4 | QFM31HK-333 | MY Cap | 0.33 |
| C 5 | QCS31HJ-271 | C Cap | 270 P |
| C 6 | QET61EM-106 | E Cap | 10 25 V |
| C 7 | " -106 | " | 10 |
| C 8 | QET41ER-107 | " | 100 |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|-------------|
| C 9 | QET61EM-107 | E Cap | 100 25 V |
| C10 | QCS31HJ-5R0 | C Cap | 5 P 50 V |
| C11 | QET61AM-227 | E Cap | 220 10 V |
| C12 | QET61EM-106 | " | 10 25 V |
| C13 | QET61AM-107 | " | 100 10 V |
| C14 | QET61EM-107 | " | 100 25 V |
| C15 | " -107 | " | 100 |
| C16 | QCS31HJ-101 | C Cap | 100 P 50 V |
| C17 | QET61EM-106 | E Cap | 10 25 V |
| C18 | QFM31HK-333 | MY Cap | 0.33 50 V |
| C19 | QCS31HJ-271 | C Cap | 270 P |
| C20 | QET61EM-106 | E Cap | 10 25 V |
| C21 | " -107 | " | 100 |
| C22 | QCS31HJ-5R0 | C Cap | 5 P 50 V |
| C23 | QET61EM-106 | E Cap | 10 25 V |
| C24 | " -106 | " | 10 |
| C25 | QET61AM-107 | " | 100 10 V |
| C26 | QET61EM-106 | " | 10 25 V |
| C27 | " -107 | " | 100 |
| C28 | " | " | " |
| C29 | QCS31HJ-1R0 | C Cap | 1 P 50 V |
| C30 | QAT3001-010 | TC Cap | 300 P 250 V |
| C31 | " | " | " |
| C32 | QCS31HJ-1R0 | C Cap | 1 P 50 V |
| C33 | QAT3001-010 | TC Cap | 300 P 250 V |
| C34 | QET61EM-107 | E Cap | 100 25 V |
| C35 | " -107 | E Cap | 100 |
| C36 | " -107 | " | 100 |
| C37 | QET41ER-107 | " | 100 16 V |
| C38 | " -107 | " | 100 |
| C39 | QFM31HK-333 | MY Cap | 0.33 50 V |
| C40 | QCS31HJ-271 | C Cap | 270 P |
| C41 | QET61EM-106 | E Cap | 10 25 V |
| C42 | " -106 | " | 10 |
| C43 | QCS31HJ-121 | C Cap | 120 P 50 V |
| C44 | QET61EM-107 | E Cap | 100 25 V |
| C45 | " -107 | " | 100 |
| C46 | QCS31HJ-390 | C Cap | 39 P 50 V |
| C47 | " -101 | " | 100 P |
| C48 | QET61EM-106 | E Cap | 10 25 V |
| C49 | QFM31HK-333 | MY Cap | 0.33 50 V |
| C50 | QCS31HJ-271 | C Cap | 270 P |
| C51 | QET61EM-106 | E Cap | 10 25 V |
| C52 | " -106 | " | 10 |
| C53 | QCS31HJ-120 | C Cap | 12 P 50 V |
| C54 | QET61EM-107 | E Cap | 100 25 V |
| C55 | " -107 | " | 100 |
| C56 | " -107 | " | 100 |
| C57 | QET61AM-227 | " | 220 10 V |
| C58 | " | " | " |
| C59 | QCS31HJ-5R0 | C Cap | 5 P 50 V |
| C60 | " -5R0 | " | 5 P |
| C61 | QET61EM-107 | E Cap | 100 25 V |
| C62 | QET41AR-107 | " | 100 10 V |
| C63 | QET61EM-106 | " | 10 25 V |
| C64 | " -106 | " | 10 |
| C65 | " -106 | " | 10 |
| C66 | " -106 | " | 10 |
| C67 | " -107 | " | 100 |
| C68 | " | " | " |
| C49 | QCS31HJ-1R0 | C Cap | 1 P 50 V |
| C70 | QAT3001-010 | TC Cap | 300 P 250 V |
| C71 | " | " | " |
| C72 | QCS31HJ-1R0 | C Cap | 1 P 50 V |
| C73 | QAT3001-010 | TC Cap | 300 P 250 V |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|-------------|
| C74 | QET61EM-107 | E Cap | 100 25 V |
| C75 | " -107 | " | 100 |
| C76 | QFM31HK-333 | MY Cap | 0.33 50 V |
| C77 | QET61EM-106 | E Cap | 10 25 V |
| C78 | QCS31HJ-271 | C Cap | 270 P 50 V |
| C79 | QET61EM-106 | E Cap | 10 25 V |
| C80 | " -107 | " | 100 |
| C81 | " -107 | " | 100 |
| C82 | " -106 | " | 10 |
| C83 | QET41ER-107 | " | 100 |
| C84 | " -107 | " | 100 |
| C85 | QEE41VM-224 | T Cap | 0.22 35 V |
| C86 | QET61EM-106 | E Cap | 10 25 V |
| C87 | QET61EM-106 | " | 10 |
| C88 | QCS31HJ-271 | C Cap | 270 P 50 V |
| C89 | QET61EM-106 | E Cap | 10 25 V |
| C90 | " | " | " |
| C91 | QET61AM-227 | E Cap | 220 10 V |
| C92 | QET61EM-106 | " | 10 25 V |
| C93 | " -106 | " | 10 |
| C94 | " | " | " |
| C95 | QET61EM-106 | E Cap | 10 25 V |
| C96 | QCS31HJ-1R0 | C Cap | 1 P 50 V |
| C97 | " -100 | " | 10 P |
| C98 | " | " | " |
| C99 | QCS31HJ-470 | C Cap | 47 P 50 V |
| C100 | QET61EM-107 | E Cap | 100 25 V |
| C101 | " -107 | " | 100 |
| C102 | QET61AM-107 | " | 100 10 V |
| C103 | " -227 | " | 220 |
| C104 | QET61EM-106 | " | 10 25 V |
| C105 | " -106 | " | 10 |
| C106 | " -106 | " | 10 |
| C107 | QET61AM-107 | " | 100 10 V |
| C108 | QET61EM-107 | " | 100 25 V |
| C109 | " -106 | " | 10 |
| C110 | " -106 | " | 10 |
| C111 | QEE41VM-224 | T Cap | 0.22 35 V |
| C112 | QCS31HJ-271 | C Cap | 270 P 50 V |
| C113 | QET61EM-106 | E Cap | 10 25 V |
| C114 | QET41ER-107 | " | 100 |
| C115 | " -107 | " | 100 |
| C116 | QET61AM-227 | " | 220 10 V |
| C117 | QET61EM-107 | " | 100 25 V |
| C118 | " -107 | " | 100 |
| C119 | QET61AM-107 | " | 100 10 V |
| C120 | QCS31HJ-271 | C Cap | 270 P 50 V |
| C121 | QET41ER-107 | E Cap | 10 25 V |
| C122 | QFM31HK-104 | MY Cap | 0.1 35 V |
| C123 | QEN61HM-105 | E Cap | 1 50 V |
| C124 | QFM31HK-103 | MY Cap | 0.01 |
| C125 | QET61EM-107 | E Cap | 100 25 V |
| C126 | " -107 | " | 100 |
| C127 | " -106 | " | 10 |
| C128 | " | " | " |
| C129 | QET61AM-227 | E Cap | 100 10 V |
| C130 | QET61EM-106 | " | 10 25 V |
| C131 | " -106 | " | 10 |
| C132 | QET61AM-107 | " | 100 10 V |
| C133 | " -106 | " | 10 |
| C134 | QCS31HJ-100 | C Cap | 10 P 25 V |
| C135 | QET61EM-106 | E Cap | 10 25 V |
| C136 | QAT3001-010 | TC Cap | 300 P 250 V |
| C137 | " -010 | " | 300 P |
| C138 | QET61EM-107 | E Cap | 100 25 V |

8.1.3 WFP Board Ass'y SCK1042-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|--------------|---------------|
| C139 | QET61EM-107 | E Cap | 100 25 V |
| C140 | QEN41CM-106 | NP Cap | 10 16 V |
| C141 | QCS31HJ-5R0 | C Cap | 5 P 50 V |
| C142 | QET61EM-106 | E Cap | 10 25 V |
| C143 | QET41ER-106 | " | 10 " |
| C144 | " -107 | " | 100 " |
| C145 | QET61EM-107 | " | 100 " |
| C146 | " -107 | " | 100 " |
| C147 | QEE41CM-475 | T Cap | 4.7 16 V |
| C148 | QCS31HJ-271 | C Cap | 270 P 50 V |
| C149 | QET61EM-106 | E Cap | 10 25 V |
| C150 | " -106 | " | 10 " |
| C151 | QCS31HJ-5R0 | C Cap | 5 P 50 V |
| L 1 | PU48530-8R2K | Peaking Coil | 8.2 μ H K |
| L 2 | " -8R2K | " | 8.2 μ H " |
| L 3 | " -8R2K | " | 8.2 μ H " |
| L 4 | " -8R2K | " | 8.2 μ H " |
| L 5 | " -8R2K | " | 8.2 μ H " |
| L 6 | " -8R2K | " | 8.2 μ H " |
| L 7 | " -8R2K | " | 8.2 μ H " |
| L 8 | " -8R2K | " | 8.2 μ H " |
| | SCV0304-00P | Connector | 53 P |
| TP1-TP11 | SCV0025-102 | Test Point | |
| | SCV0296-001 | Card Pra. | |

| Symbol No. | Part No. | Part Name | Description |
|------------|------------|------------|-------------|
| IC 1 | ICM75551PA | I. C. | INTERSIL |
| IC 2 | TC4053BP | " | TOSHIBA |
| IC 3 | CA339E | " | RCA |
| IC 4 | TC40308P | " | TOSHIBA |
| IC 5 | TC4051BP | " | " |
| IC 6 | ICM75551PA | " | INTERSIL |
| IC 7 | " | " | " |
| IC 8 | TC4011BP | " | TOSHIBA |
| IC 9 | TC4051BP | " | " |
| IC10 | TC4053BP | " | " |
| IC11 | " | " | " |
| IC12 | TC4051BP | " | " |
| IC13 | " | " | " |
| IC14 | " | " | " |
| IC15 | " | " | " |
| IC16 | MC1459L | " | MOTOROLA |
| IC17 | " | " | " |
| IC18 | TC4053BP | " | TOSHIBA |
| IC19 | CA3240E | " | RCA |
| IC20 | ICM75551PA | " | INTERSIL |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| Q 2 | 2SA564R | " | " |
| Q 3 | 2SC828R | " | " |
| Q 4 | " | " | " |
| Q 5 | 2SA564R | " | " |
| Q 6 | 2SC828R | " | " |
| Q 7 | " | " | " |
| Q 8 | 2SA564R | Transistor | MATSUSHITA |
| Q 9 | 2SC828R | " | " |
| Q10 | " | " | " |
| Q11 | " | " | " |
| Q12 | " | " | " |
| Q13 | " | " | " |
| Q14 | " | " | " |
| Q15 | " | " | " |
| Q16 | " | " | " |
| Q17 | " | " | " |
| Q18 | " | " | " |
| Q19 | " | " | " |
| Q20 | 2SA564R | Transistor | MATSUSHITA |
| Q21 | 2SC828R | " | " |
| Q22 | " | " | " |
| Q23 | " | " | " |
| Q24 | " | " | " |
| Q25 | " | " | " |
| Q26 | " | " | " |
| Q27 | 2SA564R | " | " |
| Q28 | " | " | " |
| Q29 | 2SC828R | Transistor | MATSUSHITA |
| Q30 | " | " | " |
| Q31 | " | " | " |
| Q32 | " | " | " |
| Q33 | " | " | " |
| Q34 | " | " | " |
| Q35 | " | " | " |
| Q36 | " | " | " |
| Q37 | " | " | " |
| Q38 | 2SA564R | Transistor | MATSUSHITA |
| Q39 | " | " | " |
| Q40 | 2SC564R | " | " |
| Q41 | " | " | " |
| Q42 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-----------|---------------|---------------|
| Q43 | 2SC828R | Transistor | MATSUSHITA |
| Q44 | " | " | " |
| Q45 | " | " | " |
| Q46 | 2SC828R | Transistor | MATSUSHITA |
| Q47 | " | " | " |
| Q48 | " | " | " |
| Q49 | " | " | " |
| Q50 | " | " | " |
| Q51 | " | " | " |
| Q52 | " | " | " |
| Q53 | " | " | " |
| Q54 | 2SA564R | " | " |
| Q55 | 2SC828R | " | " |
| Q56 | " | " | " |
| Q57 | " | " | " |
| Q58 | 2SA564R | " | " |
| Q59 | 2SC828R | " | " |
| Q60 | " | " | " |
| Q61 | " | " | " |
| Q62 | " | " | " |
| Q63 | " | " | " |
| Q64 | " | " | " |
| Q65 | " | " | " |
| Q66 | " | " | " |
| Q67 | 2SC828R | Transistor | MATSUSHITA |
| Q68 | " | " | " |
| Q69 | " | " | " |
| Q70 | " | " | " |
| Q71 | " | " | " |
| Q72 | " | " | " |
| Q73 | 2SC828R | Transistor | MATSUSHITA |
| Q74 | " | " | " |
| Q75 | " | " | " |
| Q76 | " | " | " |
| Q77 | " | " | " |
| Q78 | " | " | " |
| Q79 | " | " | " |
| Q80 | " | " | " |
| Q81 | 2SA564R | " | " |
| Q82 | 2SC828R | " | " |
| Q83 | " | " | " |
| Q84 | 2SC828R | Transistor | MATSUSHITA |
| Q85 | " | " | " |
| D 1 | MA165 | Diode | MATSUSHITA |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | MA165 | Diode | MATSUSHITA |
| D 6 | " | " | " |
| D 7 | 1S1555 | " | TOSHIBA |
| D 8 | OA91 | " | MATSUSHITA |
| D 9 | HZ3C2 | Zener Diode | HITACHI (3 V) |
| D10 | HZ11A3L | " | " (11 V) |
| D11 | HZ3C2 | " | " (3 V) |
| D12 | HZ11A3L | " | " (11 V) |
| D13 | OA91 | Diode | MATSUSHITA |
| D14 | SCV321(A) | V. Cap. Diode | " |
| D15 | " | " | " |
| D16 | " | " | " |
| D20 | 1S1555 | Diode | TOSHIBA |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R 1 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R 2 | " -472 | " | 4.7 K " " |
| R 3 | SCV0047-203 | VR | 20 K |
| R 4 | QRD167J-223 | CR | 22 K 1/6 W J |
| R 5 | " -223 | " | 22 K " " |
| R 6 | " -392 | " | 3.9 K " " |
| R 7 | " -473 | " | 4.7 K " " |
| R 8 | " -332 | " | 3.3 K " " |
| R 9 | SCV0047-202 | VR | 2 K |
| R10 | QRD167J-471 | CR | 470 1/6 W J |
| R11 | " -153 | " | 15 K " " |
| R12 | SCV0046-202 | VR | 2 K |
| R13 | QRD167J-222 | CR | 2.2 K 1/6 W J |
| R14 | " -102 | " | 1 K " " |
| R15 | " -473 | " | 4.7 K " " |
| R16 | " -562 | " | 5.6 K " " |
| R17 | " -222 | " | 2.2 K " " |
| R18 | " -332 | " | 3.3 K " " |
| R19 | " -472 | " | 4.7 K " " |
| R20 | " -392 | " | 3.9 K " " |
| R21 | " -562 | " | 5.6 K " " |
| R22 | " -562 | " | 5.6 K " " |
| R23 | " -473 | " | 4.7 K " " |
| R24 | " -822 | " | 8.2 K " " |
| R25 | " -153 | " | 15 K " " |
| R26 | " -152 | " | 1.5 K " " |
| R27 | SCV0047-502 | VR | 5 K |
| R28 | QRD167J-682 | CR | 6.8 K 1/6 W J |
| R29 | " -101 | " | 100 " " |
| R30 | SCV0047-202 | VR | 2 K |
| R31 | " -102 | " | 1 K |
| R32 | QRD167J-561 | CR | 560 1/6 W J |
| R33 | " -222 | " | 2.2 K " " |
| R34 | SCV0047-102 | VR | 1 K |
| R35 | QRD167J-271 | CR | 270 1/6 W J |
| R36 | " -223 | " | 22 K " " |
| R37 | SCV0047-203 | VR | 20 K |
| R38 | QRD167J-333 | CR | 33 K 1/6 W J |
| R39 | " | " | " |
| R40 | " | " | " |
| R41 | QRD167J-682 | CR | 6.8 K 1/6 W J |
| R42 | SCV0047-102 | VR | 1 K |
| R43 | QRD167J-102 | CR | 1 K 1/6 W J |
| R44 | SCV0047-202 | VR | 2 K |
| R45 | QRD167J-471 | CR | 470 1/6 W J |
| R46 | " -682 | " | 6.8 K " " |
| R47 | " -222 | " | 2.2 K " " |
| R48 | " -103 | " | 10 K " " |
| R49 | " -103 | " | 10 K " " |
| R50 | " -103 | " | 10 K " " |
| R51 | " -102 | " | 1 K " " |
| R52 | SCV0047-501 | VR | 500 |
| R53 | QRD167J-102 | CR | 1 K 1/6 W J |
| R54 | " -822 | " | 8.2 K " " |
| R55 | " -273 | " | 27 K " " |
| R56 | SCV0047-103 | VR | 10 K |
| R57 | QRD167J-473 | CR | 47 K 1/6 W J |
| R58 | " -472 | " | 4.7 K " " |
| R59 | " -272 | " | 2.7 K " " |
| R60 | " -123 | " | 12 K " " |
| R61 | " -333 | " | 3.3 K " " |
| R62 | " -332 | " | 3.3 K " " |
| R63 | " -472 | " | 4.7 K " " |
| R64 | " -682 | " | 6.8 K " " |
| R65 | " -472 | " | 4.7 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R66 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R67 | -683 | " | 68 K " " |
| R68 | SCV0047-503 | VR | 50 K |
| R69 | QRD167J-153 | CR | 15 K 1/6 W J |
| R70 | -103 | " | 10 K " " |
| R71 | -681 | " | 680 " " |
| R72 | -683 | " | 68 K " " |
| R73 | -103 | " | 10 K " " |
| R74 | SCV0047-102 | VR | 1 K |
| R75 | QRD167J-561 | CR | 560 1/6 W J |
| R76 | -153 | " | 15 K " " |
| R77 | SCV0046-202 | VR | 2 K |
| R78 | QRD167J-222 | CR | 2.2 K 1/6 W J |
| R79 | -103 | " | 10 K " " |
| R80 | -332 | " | 3.3 K " " |
| R81 | -392 | " | 3.9 K " " |
| R82 | -222 | " | 2.2 K " " |
| R83 | -332 | " | 3.3 K " " |
| R84 | -472 | " | 4.7 K " " |
| R85 | -392 | " | 3.9 K " " |
| R86 | -562 | " | 5.6 K " " |
| R87 | -562 | " | 5.6 K " " |
| R88 | -473 | " | 47 K " " |
| R89 | -822 | " | 8.2 K " " |
| R90 | -273 | " | 27 K " " |
| R91 | -681 | " | 680 " " |
| R92 | -472 | " | 4.7 K " " |
| R93 | -222 | " | 2.2 K " " |
| R94 | SCV0047-502 | VR | 5 K |
| R95 | QRD167J-682 | CR | 6.8 K 1/6 W J |
| R96 | -101 | " | 100 " " |
| R97 | SCV0047-102 | VR | 1 K |
| R98 | QRD167J-561 | CR | 560 1/6 W J |
| R99 | SCV0047-202 | VR | 2 K |
| R100 | QRD167J-102 | CR | 1 K 1/6 W J |
| R101 | SCV0047-102 | VR | 1 K |
| R102 | QRD167J-471 | CR | 470 1/6 W J |
| R103 | -683 | " | 68 K " " |
| R104 | SCV0047-503 | VR | 50 K |
| R105 | QRD167J-333 | CR | 33 K 1/6 W J |
| R106 | -222 | " | 2.2 K " " |
| R107 | -223 | " | 22 K " " |
| R108 | -682 | " | 6.8 K " " |
| R109 | -102 | " | 1 K " " |
| R110 | SCV0047-102 | VR | 1 K |
| R111 | -202 | " | 2 K |
| R112 | QRD167J-102 | CR | 1 K 1/6 W J |
| R113 | -682 | " | 6.8 K " " |
| R114 | -222 | " | 2.2 K " " |
| R115 | -103 | " | 10 K " " |
| R116 | -103 | " | 10 K " " |
| R117 | -103 | " | 10 K " " |
| R118 | -102 | " | 1 K " " |
| R119 | SCV0047-501 | VR | 500 |
| R120 | QRD167J-102 | CR | 1 K 1/6 W J |
| R121 | -822 | " | 8.2 K " " |
| R122 | -273 | " | 27 K " " |
| R123 | SCV0047-103 | VR | 10 K |
| R124 | QRD167J-473 | CR | 47 K 1/6 W J |
| R125 | -472 | " | 4.7 K " " |
| R126 | -272 | " | 2.7 K " " |
| R127 | -123 | " | 12 K " " |
| R128 | -333 | " | 33 K " " |
| R129 | -222 | " | 2.2 K " " |
| R130 | -471 | " | 4.7 K |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R131 | QRD167J-222 | CR | 2.2 K 1/6 W J |
| R132 | SCV0047-202 | VR | 2 K |
| R133 | QRD167J-332 | CR | 3.3 K 1/6 W J |
| R134 | -123 | " | 12 K " " |
| R135 | -473 | " | 47 K " " |
| R136 | -561 | " | 560 " " |
| R137 | -123 | " | 12 K " " |
| R138 | -473 | " | 47 K " " |
| R139 | -272 | " | 2.7 K " " |
| R140 | -472 | " | 4.7 K " " |
| R141 | -473 | " | 47 K " " |
| R142 | -473 | " | 47 K " " |
| R143 | -473 | " | 47 K " " |
| R144 | -473 | " | 47 K " " |
| R145 | -102 | " | 1 K " " |
| R146 | -122 | " | 1.2 K " " |
| R147 | -102 | " | 1 K " " |
| R148 | -682 | " | 6.8 K " " |
| R149 | -122 | " | 1.2 K " " |
| R150 | -473 | " | 47 K " " |
| R151 | -822 | " | 8.2 K " " |
| R152 | -102 | " | 1 K " " |
| R153 | -470 | " | 47 " " |
| R154 | -221 | " | 220 " " |
| R155 | -822 | " | 8.2 K " " |
| R156 | -332 | " | 3.3 K " " |
| R157 | -332 | " | 3.3 K " " |
| R158 | -102 | " | 1 K " " |
| R159 | -152 | " | 15 K " " |
| R160 | -103 | " | 10 K " " |
| R161 | -472 | " | 4.7 K " " |
| R162 | -103 | " | 10 K " " |
| R163 | -473 | " | 47 K " " |
| R164 | -104 | " | 100 K " " |
| R165 | -222 | " | 2.2 K " " |
| R166 | -103 | " | 10 K " " |
| R167 | SCV0047-103 | VR | 10 K |
| R168 | QRD167J-392 | CR | 3.9 K 1/6 W J |
| R169 | -223 | " | 22 K " " |
| R170 | SCV0047-503 | VR | 50 K |
| R171 | QRD167J-473 | CR | 47 K 1/6 W J |
| R172 | -104 | " | 100 K " " |
| R173 | -473 | " | 47 K " " |
| R174 | - | - | - |
| R175 | - | - | - |
| R176 | QRD167J-222 | CR | 2.2 K 1/6 W J |
| R177 | -473 | " | 47 K " " |
| R178 | - | - | - |
| R179 | QRD167J-273 | CR | 27 K 1/6 W J |
| R180 | -103 | " | 10 K " " |
| R181 | -473 | " | 47 K " " |
| R182 | -472 | " | 4.7 K " " |
| R183 | -562 | " | 5.6 K " " |
| R184 | SCV0047-103 | VR | 10 K |
| R185 | QRD167J-103 | CR | 10 K 1/6 W J |
| R186 | -562 | " | 5.6 K " " |
| R187 | -472 | " | 4.7 K " " |
| R188 | -472 | " | 4.7 K " " |
| R189 | -103 | " | 10 K " " |
| R190 | -221 | " | 220 " " |
| R191 | -682 | " | 6.8 K " " |
| R192 | QRD167J-471 | CR | 470 |
| R193 | -102 | " | 1 K 1/6 W J |
| R194 | -682 | " | 6.8 K " " |
| R195 | -122 | " | 1.2 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R196 | QRD167J-473 | CR | 47 K 1/6 W J |
| R197 | -822 | " | 8.2 K " " |
| R198 | -102 | " | 1 K " " |
| R199 | -470 | " | 47 " " |
| R200 | -822 | " | 8.2 K " " |
| R201 | -332 | " | 3.3 K " " |
| R202 | -152 | " | 1.5 K " " |
| R203 | -103 | " | 10 K " " |
| R204 | -103 | " | 10 K " " |
| R205 | -472 | " | 4.7 K " " |
| R206 | -332 | " | 3.3 K " " |
| R207 | -103 | " | 10 K " " |
| R208 | -333 | " | 33 K " " |
| R209 | -102 | " | 1 K " " |
| R210 | -272 | " | 2.7 K " " |
| R211 | -221 | " | 220 " " |
| R212 | -103 | " | 10 K " " |
| R213 | -393 | " | 39 K " " |
| R214 | -121 | " | 120 K " " |
| R215 | -103 | " | 10 K " " |
| R216 | -332 | " | 3.3 K " " |
| R217 | -222 | " | 2.2 K " " |
| R218 | -473 | " | 47 K " " |
| R219 | -472 | " | 4.7 K " " |
| R220 | -103 | " | 10 K " " |
| R221 | -393 | " | 39 K " " |
| R222 | -102 | " | 1 K " " |
| R223 | -472 | " | 4.7 K " " |
| R224 | -331 | " | 330 " " |
| R225 | -102 | " | 1 K " " |
| R226 | -103 | " | 10 K " " |
| R227 | -222 | " | 2.2 K " " |
| R228 | -561 | " | 560 " " |
| R229 | -561 | " | 560 " " |
| R230 | -100 | " | 10 " " |
| R231 | -470 | " | 47 " " |
| R232 | -682 | " | 6.8 K " " |
| R233 | -152 | " | 1.5 K " " |
| R234 | -223 | " | 22 K " " |
| R235 | - | - | - |
| R236 | QRD167J-152 | CR | 1.5 K 1/6 W J |
| R237 | -152 | " | 1.5 K " " |
| R238 | -103 | " | 10 K " " |
| R239 | -222 | " | 2.2 K " " |
| R240 | -561 | " | 560 " " |
| R241 | -561 | " | 560 " " |
| R242 | -100 | " | 10 " " |
| R243 | -470 | " | 47 " " |
| R244 | -682 | " | 6.8 K " " |
| R245 | SCV0046-102 | VR | 1 K |
| R246 | QRD167J-152 | CR | 1.5 K 1/6 W J |
| R247 | -223 | " | 22 K " " |
| R248 | - | - | - |
| R249 | QRD167J-822 | CR | 8.2 K 1/6 W J |
| R250 | SCV0047-501 | VR | 500 |
| R251 | QRD167J-102 | CR | 1 K 1/6 W J |
| R252 | -472 | " | 4.7 K " " |
| R253 | -153 | " | 15 K " " |
| R254 | -103 | " | 10 K " " |
| R255 | -272 | " | 2.7 K " " |
| R256 | -153 | " | 15 K " " |
| R257 | -103 | " | 10 K " " |
| R258 | -272 | " | 2.7 K " " |
| R259 | -153 | " | 15 K " " |
| R260 | -103 | " | 10 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R261 | QRD167J-272 | CR | 2.7 K 1/6 W J |
| R262 | -681 | " | 680 " " |
| R263 | -122 | " | 1.2 K " " |
| R264 | -681 | " | 680 " " |
| R265 | -681 | " | 680 " " |
| R266 | -122 | " | 1.2 K " " |
| R267 | -681 | " | 680 " " |
| R268 | -681 | " | 680 " " |
| R269 | -122 | " | 1.2 K " " |
| R270 | -681 | " | 680 " " |
| R271 | -473 | " | 47 K " " |
| R272 | -473 | " | 47 K " " |
| R273 | -473 | " | 47 K " " |
| R274 | -272 | " | 2.7 K " " |
| R275 | -333 | " | 33 K " " |
| R276 | -153 | " | 15 K " " |
| R277 | -272 | " | 2.7 K " " |
| R278 | -153 | " | 15 K " " |
| R279 | - | - | - |
| R280 | QRD167J-682 | CR | 6.8 K 1/6 W J |
| R281 | -561 | " | 560 " " |
| R282 | -561 | " | 560 " " |
| R283 | -562 | " | 5.6 K " " |
| R284 | -562 | " | 5.6 K " " |
| R285 | GC31868-152 | MFR | 1.5 K 1/4 W F |
| R286 | -152 | " | 1.5 K " " |
| R287 | QRD167J-101 | CR | 100 1/6 W J |
| R288 | -101 | " | 100 " " |
| R289 | -562 | " | 5.6 K " " |
| R290 | -561 | " | 560 " " |
| R291 | -472 | " | 4.7 K " " |
| R292 | -332 | " | 3.3 K " " |
| R293 | -182 | " | 1.8 K " " |
| R294 | -682 | " | 6.8 K " " |
| R295 | -102 | " | 1 K " " |
| R296 | -182 | " | 1.8 K " " |
| R297 | -561 | " | 560 " " |
| R298 | -271 | " | 270 " " |
| R299 | SCV0047-501 | VR | 500 |
| R300 | QRD167J-271 | CR | 270 1/6 W J |
| R301 | -821 | " | 820 " " |
| R302 | -222 | " | 2.2 K " " |
| R303 | -222 | " | 2.2 K " " |
| R304 | -103 | " | 10 K " " |
| R305 | -393 | " | 39 K " " |
| R306 | -272 | " | 2.7 K " " |
| R307 | -153 | " | 15 K " " |
| R308 | -333 | " | 33 K " " |
| R309 | -272 | " | 2.7 K " " |
| R310 | -153 | " | 15 K " " |
| R311 | -333 | " | 33 K " " |
| R312 | -682 | " | 6.8 K " " |
| R313 | -561 | " | 560 " " |
| R314 | -561 | " | 560 " " |
| R315 | -562 | " | 5.6 K " " |
| R316 | -562 | " | 5.6 K " " |
| R317 | GC31868-152 | MFR | 1.5 K 1/4 W F |
| R318 | -152 | " | 1.5 K " " |
| R319 | QRD167J-101 | CR | 100 1/6 W J |
| R320 | -101 | " | 100 " " |
| R321 | -682 | " | 6.8 K " " |
| R322 | -561 | " | 560 " " |
| R323 | -472 | " | 4.7 K " " |
| R324 | -332 | " | 3.3 K " " |
| R325 | -182 | " | 1.8 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R326 | QRD167J-682 | CR | 6.8 K 1/6 W J |
| R327 | " -102 | " | 1 K " " |
| R328 | " -182 | " | 1.8 K " " |
| R329 | " -561 | " | 560 " " |
| R330 | " -271 | " | 270 " " |
| R331 | SCV0047-501 | VR | 500 |
| R332 | QRD167J-271 | CR | 270 1/6 W J |
| R333 | SCV0047-501 | VR | 500 |
| R334 | QRD167J-561 | CR | 560 1/6 W J |
| R335 | " -102 | " | 1 K " " |
| R336 | " -472 | " | 4.7 K " " |
| R337 | " -472 | " | 4.7 K " " |
| R338 | " -103 | " | 10 K " " |
| R339 | " -223 | " | 22 K " " |
| R340 | " -152 | " | 1.5 K " " |
| R341 | " -152 | " | 1.5 K " " |
| R342 | " | " | " |
| R343 | QRD167J-473 | CR | 47 K 1/6 W J |
| R344 | " -103 | " | 10 K " " |
| R345 | " -333 | " | 33 K " " |
| R346 | " -102 | " | 1 K " " |
| R347 | " -272 | " | 2.7 K " " |
| R348 | " -331 | " | 330 " " |
| R349 | " -221 | " | 220 " " |
| R350 | " -103 | " | 10 K " " |
| R351 | " -333 | " | 33 K " " |
| R352 | " -472 | " | 4.7 K " " |
| R353 | " -103 | " | 10 K " " |
| R354 | " -393 | " | 39 K " " |
| R355 | " -102 | " | 1 K " " |
| R356 | " -472 | " | 4.7 K " " |
| R357 | " -331 | " | 330 " " |
| R358 | " -102 | " | 1 K " " |
| R359 | " -472 | " | 4.7 K " " |
| R360 | " -331 | " | 330 " " |
| R361 | " -121 | " | 120 " " |
| R362 | " -100 | " | 10 " " |
| R363 | " -470 | " | 47 " " |
| R364 | " -822 | " | 8.2 K " " |
| R365 | " -822 | " | 8.2 K " " |
| R366 | " -331 | " | 330 " " |
| R367 | " -392 | " | 3.9 K " " |
| R368 | SCV0046-103 | VR | 10 K |
| R369 | QRD167J-104 | CR | 100 K 1/6 W J |
| R370 | " -223 | " | 22 K " " |
| R371 | " -472 | " | 4.7 K " " |
| R372 | " -122 | " | 1.2 K " " |
| R373 | " -152 | " | 1.5 K " " |
| R374 | " -473 | " | 47 K " " |
| R375 | " -332 | " | 3.3 K " " |
| R376 | " -222 | " | 2.2 K " " |
| R377 | " -222 | " | 2.2 K " " |
| R378 | " -222 | " | 2.2 K " " |
| C 1 | QFM31HK-102 | MY Cap | 0.001 50 V |
| C 2 | QCS31HJ-101 | C Cap | 100 P " |
| C 3 | QFM31HK-103 | MY Cap | 0.01 " |
| C 4 | " -103 | " | 0.01 " |
| C 5 | QET41ER-106 | E Cap | 10 25 V |
| C 6 | QET61EM-475 | " | 47 " |
| C 7 | QCS31HJ-101 | C Cap | 100 P 50 V |
| C 8 | " -221 | " | 220 P " |
| C 9 | QFM31HK-103 | MY Cap | 0.01 " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|-------------|
| C10 | QFM31HK-103 | MY Cap | 0.01 50 V |
| C11 | " -153 | " | 0.015 " |
| C12 | " -153 | " | 0.015 " |
| C13 | " -102 | " | 0.001 " |
| C14 | " -103 | " | 0.01 " |
| C15 | " -103 | " | 0.01 " |
| C16 | QET61EM-106 | E Cap | 10 25 V |
| C17 | " -106 | " | 10 " |
| C18 | " -106 | " | 10 " |
| C19 | QET41ER-476 | " | 47 " " |
| C20 | QET61EM-106 | " | 10 " " |
| C21 | " -106 | " | 10 " " |
| C22 | QEE41CM-226 | T Cap | 22 16 V |
| C23 | QFM31HK-104 | MY Cap | 0.1 50 V |
| C24 | " -153 | " | 0.015 " |
| C25 | QEE41VM-105 | T Cap | 1 35 V |
| C26 | " -105 | " | 1 " |
| C27 | QET41AR-476 | E Cap | 47 10 V |
| C28 | QET61EM-475 | " | 4.7 25 V |
| C29 | QFM31HK-333 | MY Cap | 0.033 " |
| C30 | " -333 | " | 0.033 " |
| C31 | QET61AM-107 | E Cap | 100 10 V |
| C32 | QEE41EM-225 | T Cap | 2.2 25 V |
| C33 | " -225 | " | 2.2 " |
| C34 | " -475 | " | 4.7 " |
| C35 | " -475 | " | 4.7 " |
| C36 | QFM31HK-104 | MY Cap | 0.1 50 V |
| C37 | QEE41EM-475 | T Cap | 4.7 25 V |
| C38 | " -475 | " | 4.7 " |
| C39 | QET41AR-476 | E Cap | 47 10 V |
| C40 | QET61AM-476 | " | 47 " |
| C41 | " -476 | " | 47 " |
| C42 | " -107 | " | 100 " |
| C43 | " -476 | " | 47 " |
| C44 | QFM31HK-222 | MY Cap | 0.0022 50 V |
| C45 | QET61AM-476 | E Cap | 47 10 V |
| C46 | QEE41CM-226 | T Cap | 22 16 V |
| C47 | QET61EM-106 | E Cap | 10 25 V |
| C48 | QCS31HJ-101 | C Cap | 100 P 50 V |
| C49 | QET41ER-106 | E Cap | 10 25 V |
| C50 | QET61EM-106 | " | 10 " |
| C51 | " -106 | " | 10 " |
| C52 | " -476 | " | 47 " |
| C53 | " -476 | " | 47 " |
| C54 | " -476 | " | 47 " |
| C55 | QEE41VM-105 | T Cap | 1 35 V |
| C56 | QET61EM-476 | " | 47 25 V |
| C57 | " -106 | " | 10 " |
| C58 | QCS31HJ-680 | C Cap | 68 P 50 V |
| C59 | QET61EM-106 | E Cap | 10 25 V |
| C60 | QCS31HJ-680 | C Cap | 68 P 50 V |
| C61 | " -101 | " | 100 P " |
| C62 | QFM31HK-222 | MY Cap | 0.0022 " |
| C63 | " -222 | " | 0.0022 " |
| C64 | QET61EM-476 | E Cap | 47 25 V |
| C65 | " -476 | " | 47 " |
| C66 | " -476 | " | 47 " |
| C67 | " -476 | " | 47 " |
| C68 | " -476 | " | 47 " |
| C69 | " -106 | " | 10 " |
| C70 | " -106 | " | 10 " |
| C71 | QET41ER-106 | " | 10 " |
| C72 | QET61EM-106 | " | 10 " |
| C73 | " -106 | " | 10 " |
| C74 | " -106 | " | 10 " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|--------------|
| C75 | QET61EM-106 | E Cap | 10 25 V |
| C76 | " -106 | " | 10 " |
| C77 | QET61AM-227 | " | 220 10 V |
| C78 | QET41ER-476 | " | 470 " |
| C79 | QET61AM-476 | " | 470 " |
| C80 | " -106 | " | 10 " |
| C81 | QET41ER-106 | " | 10 25 V |
| C82 | QET61EM-106 | " | 10 " |
| C83 | " -106 | " | 10 " |
| C84 | " -106 | " | 10 " |
| C85 | " -106 | " | 10 " |
| C86 | " -106 | " | 10 " |
| C87 | " -106 | " | 10 " |
| C88 | " -476 | " | 47 " |
| C89 | " -476 | " | 47 " |
| C90 | " -106 | " | 10 " |
| C91 | QET61AM-476 | " | 47 10 V |
| C92 | QET61EM-476 | " | 47 25 V |
| C93 | " -476 | " | 47 " |
| C94 | " -106 | " | 10 " |
| C95 | QEE41VM-105 | T Cap | 1 35 V |
| C96 | QET61EM-476 | E Cap | 47 25 V |
| C97 | QET61AM-476 | " | 47 10 V |
| C98 | QCS31HJ-181 | C Cap | 180 P 50 V |
| C99 | " -181 | " | 180 P " |
| C100 | " -181 | " | 180 P " |
| C101 | " -181 | " | 180 P " |
| C102 | " -181 | " | 180 P " |
| C103 | QFM31HK-104 | MY Cap | 0.1 " |
| C104 | QCS31HJ-680 | C Cap | 68 P " |
| C105 | QET61AM-227 | E Cap | 220 10 V |
| C106 | QET61EM-107 | " | 100 25 V |
| C107 | QET61AM-227 | " | 220 10 V |
| C108 | QET41ER-107 | " | 100 25 V |
| C109 | QET61EM-107 | " | 100 " |
| C110 | " -107 | " | 100 " |
| C111 | " -107 | " | 100 " |
| C112 | " -107 | " | 100 " |
| C113 | " -107 | " | 100 " |
| C114 | QET41ER-107 | " | 100 " |
| C115 | QET61AM-107 | " | 100 10 V |
| C116 | QET61EM-107 | " | 100 25 V |
| C117 | QET61AM-107 | " | 100 10 V |
| C118 | QCF31EZ-473 | C Cap | 47000 P 25 V |
| C119 | " -473 | " | 47000 P " |
| C120 | QET61EM-107 | E Cap | 100 " |
| C121 | " | " | " |
| C122 | QET61EM-106 | E Cap | 1 25 V |
| C123 | QFM31HK-103 | MY Cap | 0.01 50 V |
| C124 | QCS31HJ-101 | C Cap | 100 P " |
| C125 | " -101 | " | 100 P " |
| C126 | QFM31HK-103 | MY Cap | 0.01 " |
| C127 | " -103 | " | 0.01 " |
| C128 | " -153 | " | 0.015 " |
| C129 | " -103 | " | 0.01 " |
| C130 | " | " | " |
| C131 | QET61AM-476 | E Cap | 47 10 V |
| C140 | QCS31HJ-470 | CE Cap | 47 50 V |
| C141 | " -220 | " | 22 P " |

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|---------------|-------------|
| L 1 | PU48530-120K | Peaking Coil | 12 μ H |
| L 2 | " -270K | " | 27 μ H |
| L 3 | " -270K | " | 27 μ H |
| L 4 | " -270K | " | 27 μ H |
| L 5 | " -270K | " | 27 μ H |
| L 6 | " -220K | " | 22 μ H |
| L 7 | " -220K | " | 22 μ H |
| L 8 | PU48530-220K | Peaking Coil | 22 μ H |
| L 9 | " -220K | " | 22 μ H |
| S 1 | SCV0010-001 | Switch | |
| PC-1 | MCD-735 | Photo Coupler | |
| PC-2 | " | " | |
| TP1- | SCV0025-102 | Test Point | |
| TP20 | GC44813-001 | " | |
| TP-8 | GC44813-001 | " | |
| CN 3 | SCV0304-00P | Connector | 53 Pin |

8.1.4 BC Board Ass'y SCK1035-00A (NTSC)
SCK1035-00B (PAL)

| Symbol No. | Part No. | Part Name | Description |
|------------|------------|------------|-------------|
| IC 1 | TC4009UBP | I.C. | TOSHIBA |
| IC 2 | AN612 | " | MATSUSHITA |
| IC 3 | AN614 | " | " |
| IC 4 | " | " | " |
| IC 5 | TC4053BP | " | TOSHIBA |
| IC 6 | TA78L012AP | " | " (12 V) |
| IC 7 | NUM4560D | " | JRC |
| IC 8 | " | " | " |
| IC 9 | CA3083AE | " | RCA |
| IC10 | MC1496P | " | MOTOROLA |
| IC11 | " | " | " |
| IC12 | NUM4560D | " | JRC |
| IC13 | " | " | " |
| IC14 | CA3083AE | " | RCA |
| IC15 | MC1496P | " | MOTOROLA |
| IC16 | " | " | " |
| IC17 | AN612 | " | MATSUSHITA |
| IC18 | " | " | " |
| IC19 | TC4053BP | " | TOSHIBA |
| IC20 | TC4009UBP | " | " |
| IC21 | TC4528BP | " | " |
| IC22 | TC4011BP | " | " |
| IC23 | TA78L005AP | " | " (5 V) |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| Q 2 | " | " | " |
| Q 3 | " | " | " |
| Q 4 | 2SA564R | " | " |
| Q 5 | " | " | " |
| Q 6 | 2SC828R | " | " |
| Q 7 | " | " | " |
| Q 8 | " | " | " |
| Q 9 | " | " | " |
| Q10 | 2SA564R | " | " |
| Q11 | " | " | " |
| Q12 | 2SC828R | " | " |
| Q13 | " | " | " |
| Q14 | " | " | " |
| Q15 | 2SC1509R | " | " |
| Q16 | " | " | " |
| Q17 | 2SC828R | " | " |
| Q18 | " | " | " |
| Q19 | " | " | " |
| Q20 | " | " | " |
| Q21 | " | " | " |
| Q22 | " | " | " |
| Q23 | " | " | " |
| Q24 | " | " | " |
| Q25 | " | " | " |
| Q26 | 2SA564R | " | " |
| Q27 | 2SC828R | " | " |
| Q28 | " | " | " |
| Q29 | " | " | " |
| Q30 | " | " | " |
| Q31 | " | " | " |
| Q32 | " | " | " |
| Q33 | 2SA564R | " | " |
| Q34 | 2SC828R | " | " |
| Q35 | " | " | " |
| Q36 | 2SA564R | " | " |
| Q37 | 2SC828R | " | " |
| Q38 | " | " | " |
| Q39 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|---------------|----------------|
| Q40 | 2SA564R | Transistor | MATSUSHITA |
| Q41 | 2SC828R | " | " |
| Q42 | " | " | " |
| Q43 | " | " | " |
| Q44 | " | " | " |
| Q45 | " | " | " |
| Q46 | 2SA564R | " | " |
| Q47 | 2SC828R | " | " |
| Q48 | " | " | " |
| Q49 | 2SA564R | " | " |
| Q50 | 2SC828R | " | " |
| Q51 | " | " | " |
| Q52 | " | " | " |
| Q53 | " | " | " |
| Q54 | " | " | " |
| Q55 | " | " | " |
| Q56 | " | " | " |
| Q57 | " | " | " |
| Q58 | " | " | " |
| Q59 | 2SA564R | " | " |
| ZD 1 | HZ16L2 | Zener Diode | HITACHI (16 V) |
| ZD 2 | " | " | " (16 V) |
| ZD 3 | " | " | " (16 V) |
| D 1 | MA165 | Silicon Diode | MATSUSHITA |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | OA91 | Diode | " |
| D 6 | " | " | " |
| D 7 | " | " | " |
| R 1 | QRD167J-153 | CR | 15 K 1/6 W J |
| R 2 | " -103 | " | 10 K " " |
| R 3 | " -222 | " | 2.2 K " " |
| R 4 | " -104 | " | 100 K " " |
| R 5 | " -103 | " | 10 K " " |
| R 6 | " -222 | " | 2.2 K " " |
| R 7 | " -223 | " | 22 K " " |
| R 8 | " -223 | " | 22 K " " |
| R 9 | " -153 | " | 15 K " " |
| R10 | " -393 | " | 39 K " " |
| R11 | SCV0047-501 | VR | 500 |
| R12 | QRD167J-222 | CR | 2.2 K 1/6 W J |
| R13 | " -152 | " | 1.5 K " " |
| R14 | SCV0047-203 | VR | 20 K |
| R15 | QRD167J-222 | CR | 2.2 K 1/6 W J |
| R16 | GC31868-824 | MFR | 820 K 1/4 W F |
| R17 | QRD167J-183 | CR | 18 K 1/6 W J |
| R18 | " -102 | " | 1 K " " |
| R19 | " -152 | " | 1.5 K " " |
| R20 | SCV0047-501 | VR | 500 |
| R21 | QRD167J-153 | CR | 15 K 1/6 W J |
| R22 | " -152 | " | 1.5 K " " |
| R23 | " -102 | " | 1 K " " |
| R24 | " -183 | " | 18 K " " |
| R25 | " -102 | " | 1 K " " |
| R26 | " -152 | " | 1.5 K " " |
| R27 | " -152 | " | 1.5 K " " |
| R28 | " -273 | " | 27 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R29 | QRD167J-562 | CR | 5.6 K 1/6 W J |
| R30 | " -222 | " | 2.2 K " " |
| R31 | " -821 | " | 820 " " |
| R32 | " -681 | " | 680 " " |
| R33 | " -273 | " | 27 K " " |
| R34 | " -822 | " | 8.2 K " " |
| R35 | " -473 | " | 47 K " " |
| R36 | " -273 | " | 27 K " " |
| R37 | " -273 | " | 27 K " " |
| R38 | " -222 | " | 2.2 K " " |
| R39 | GC31868-680 | MFR | 68 1/4 W F |
| R40 | QRD167J-331 | CR | 330 1/6 W J |
| R41 | " -152 | " | 1.5 K " " |
| R42 | GC31868-680 | MFR | 68 1/4 W F |
| R43 | QRD167J-332 | CR | 3.3 K 1/6 W J |
| R44 | " -104 | " | 100 K " " |
| R45 | SCV0047-203 | VR | 20 K |
| R46 | " -502 | " | 5 K " " |
| R47 | QRD167J-123 | CR | 12 K 1/6 W J |
| R48 | " -123 | " | 12 K " " |
| R49 | " -102 | " | 1 K " " |
| R50 | " -104 | " | 100 K " " |
| R51 | " -750 | " | 75 " " |
| R52 | " -102 | " | 1 K " " |
| R53 | " -104 | " | 100 K " " |
| R54 | " -102 | " | 1 K " " |
| R55 | " -102 | " | 1 K " " |
| R56 | " -332 | " | 3.3 K " " |
| R57 | " -473 | " | 47 K " " |
| R58 | " -472 | " | 4.7 K " " |
| R59 | " -750 | " | 75 " " |
| R60 | " -750 | " | 75 " " |
| R61 | " -102 | " | 1 K " " |
| R62 | " -750 | " | 75 " " |
| R63 | " -102 | " | 1 K " " |
| R64 | " -152 | " | 1.5 K " " |
| R65 | " -222 | " | 2.2 K " " |
| R66 | " -273 | " | 27 K " " |
| R67 | " -271 | " | 270 " " |
| R68 | " -221 | " | 220 " " |
| R69 | " -273 | " | 27 K " " |
| R70 | " -681 | " | 680 " " |
| R71 | " -102 | " | 1 K " " |
| R72 | SCV0047-102 | VR | 1 K |
| R73 | QRD167J-101 | CR | 100 1/6 W J |
| R74 | " -152 | " | 1.5 K " " |
| R75 | " -102 | " | 1 K " " |
| R76 | " -102 | " | 1 K " " |
| R77 | " -561 | " | 560 " " |
| R78 | " -561 | " | 560 " " |
| R79 | " -152 | " | 1.5 K " " |
| R80 | " -222 | " | 2.2 K " " |
| R81 | " -183 | " | 18 K " " |
| R82 | GC31868-824 | MFR | 820 K 1/4 W F |
| R83 | QRD167J-102 | CR | 1 K 1/6 W J |
| R84 | " -152 | " | 1.5 K " " |
| R85 | SCV0047-501 | VR | 500 |
| R86 | QRD167J-152 | CR | 1.5 K 1/6 W J |
| R87 | " -102 | " | 1 K " " |
| R88 | " -183 | " | 18 K " " |
| R89 | " -152 | " | 1.5 K " " |
| R90 | " -682 | " | 6.8 K " " |
| R91 | " -332 | " | 3.3 K " " |
| R92 | " -104 | " | 100 K " " |
| R93 | " -472 | " | 4.7 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R94 | SCV0047-502 | VR | 5 K |
| R95 | " | " | " |
| R96 | SCV0047-202 | VR | 2 K |
| R97 | QRD167J-222 | CR | 2.2 K 1/6 W J |
| R98 | " -104 | " | 100 K " " |
| R99 | " -103 | " | 10 K " " |
| R100 | SCV0047-102 | VR | 1 K |
| R101 | QRD167J-222 | CR | 2.2 K 1/6 W J |
| R102 | " -272 | " | 2.7 K " " |
| R103 | " -152 | " | 1.5 K " " |
| R104 | " -332 | " | 3.3 K " " |
| R105 | " -472 | " | 4.7 K " " |
| R106 | " -272 | " | 2.7 K " " |
| R107 | " -152 | " | 1.5 K " " |
| R108 | " -104 | " | 100 K " " |
| R109 | " -473 | " | 47 K " " |
| R110 | " -273 | " | 27 K " " |
| R111 | " -331 | " | 330 " " |
| R112 | " -222 | " | 2.2 K " " |
| R113 | " -152 | " | 1.5 K " " |
| R114 | GC31868-101 | MFR | 100 1/4 W F |
| R115 | QRD167J-750 | CR | 75 1/6 W J |
| R116 | GC31868-101 | MFR | 100 1/4 W F |
| R117 | QRD167J-102 | CR | 1 K 1/6 W J |
| R118 | " -682 | " | 6.8 K " " |
| R119 | " -123 | " | 12 K " " |
| R120 | " -153 | " | 15 K " " |
| R121 | " -153 | " | 15 K " " |
| R122 | " -222 | " | 2.2 K " " |
| R123 | " -153 | " | 15 K " " |
| R124 | " -153 | " | 15 K " " |
| R125 | " -123 | " | 12 K " " |
| R126 | " -153 | " | 15 K " " |
| R127 | " -153 | " | 15 K " " |
| R128 | " -681 | " | 680 " " |
| R129 | " -681 | " | 680 " " |
| R130 | " -681 | " | 680 " " |
| R131 | " -681 | " | 680 " " |
| R132 | " -681 | " | 680 " " |
| R133 | " -681 | " | 680 " " |
| R134 | " -680 | " | 68 " " |
| R135 | " -680 | " | 68 " " |
| R136 | " -680 | " | 68 " " |
| R137 | " -392 | " | 3.9 K " " |
| R138 | " -102 | " | 1 K " " |
| R139 | " -221 | " | 220 " " |
| R140 | " -121 | " | 120 " " |
| R141 | " -680 | " | 68 " " |
| R142 | " -680 | " | 68 " " |
| R143 | " -680 | " | 68 " " |
| R144 | " -392 | " | 3.9 K " " |
| R145 | " -471 | " | 470 " " |
| R146 | " -221 | " | 220 " " |
| R147 | " -271 | " | 270 " " |
| R148 | " -332 | " | 3.3 K " " |
| R149 | " -102 | " | 1 K " " |
| R150 | " -821 | " | 820 " " |
| R151 | " -392 | " | 3.9 K " " |
| R152 | " -823 | " | 82 K " " |
| R153 | " -682 | " | 6.8 K " " |
| R154 | " -152 | " | 1.5 K " " |
| R155 | " -470 | " | 47 " " |
| R156 | " -153 | " | 15 K " " |
| R157 | " -123 | " | 12 K " " |
| R158 | " -561 | " | 560 " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|--------------|
| R159 | QRD167J-561 | CR | 560 1/6 W J |
| R160 | " -472 | " | 4.7 K " |
| R161 | " -561 | " | 560 " " |
| R162 | " -392 | " | 3.9 K " |
| R163 | " -221 | " | 220 " " |
| R164 | " -471 | " | 470 " " |
| R165 | SCV0047-102 | VR | 1 K " |
| R166 | QRD167J-223 | CR | 22 K 1/6 W J |
| R167 | " -103 | " | 10 K " |
| R168 | " -682 | " | 6.8 K " |
| R169 | " -102 | " (NTSC) | 1 K " |
| " | " -471 | " (PAL) | 470 " " |
| R170 | " -103 | " (NTSC) | 10 K " |
| " | " -562 | " (PAL) | 5.6 K " |
| R171 | " -103 | " | 10 K " |
| R172 | " -104 | " | 100 K " |
| R173 | " -102 | " | 1 K " |
| R174 | " -123 | " | 12 K " |
| R175 | " -222 | " | 2.2 K " |
| R176 | " -153 | " | 15 K " |
| R177 | " -153 | " | 15 K " |
| R178 | " -123 | " | 12 K " |
| R179 | " -153 | " | 15 K " |
| R180 | " -153 | " | 15 K " |
| R181 | " -153 | " | 15 K " |
| R182 | " -153 | " | 15 K " |
| R183 | " -681 | " | 680 " " |
| R184 | " -681 | " | 680 " " |
| R185 | " -681 | " | 680 " " |
| R186 | " -681 | " | 680 " " |
| R187 | " -681 | " | 680 " " |
| R188 | " -681 | " | 680 " " |
| R189 | " -680 | " | 68 " " |
| R190 | " -680 | " | 68 " " |
| R191 | " -680 | " | 68 " " |
| R192 | " -392 | " | 3.9 K " |
| R193 | " -102 | " | 1 K " |
| R194 | " -392 | " | 3.9 K " |
| R195 | " -121 | " | 120 " " |
| R196 | " -680 | " | 68 " " |
| R197 | " -680 | " | 68 " " |
| R198 | " -680 | " | 68 " " |
| R199 | " -221 | " | 220 " " |
| R200 | " -471 | " | 470 " " |
| R201 | " -221 | " | 220 " " |
| R202 | " -271 | " | 270 " " |
| R203 | " -332 | " | 3.3 K " |
| R204 | " -102 | " | 1 K " |
| R205 | " -821 | " | 820 " " |
| R206 | " -392 | " | 3.9 K " |
| R207 | " -823 | " | 82 K " |
| R208 | " -152 | " | 1.5 K " |
| R209 | " -682 | " | 6.8 K " |
| R210 | " -470 | " | 47 " " |
| R211 | " -153 | " | 15 K " |
| R212 | " -123 | " | 12 K " |
| R213 | " -472 | " | 4.7 K " |
| R214 | " -561 | " | 560 " " |
| R215 | " -561 | " | 560 " " |
| R216 | " -561 | " | 560 " " |
| R217 | " -332 | " | 3.3 K " |
| R218 | " -392 | " | 3.9 K " |
| R219 | " -221 | " | 220 " " |
| R220 | " -471 | " | 470 " " |
| R221 | SCV0047-102 | VR | 1 K " |
| R222 | QRD167J-223 | CR | 22 K 1/6 W J |
| R223 | " -103 | " | 10 K " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|--------------|---------------|
| R224 | QRD167J-682 | CR | 6.8 K 1/6 W J |
| R225 | " -471 | " (NTSC) | 470 " " |
| " | " -221 | " (PAL) | 220 " " |
| R226 | " -103 | " (NTSC) | 10 K " |
| " | " -562 | " (PAL) | 5.6 K " |
| R227 | " -104 | " | 100 K " |
| R228 | " -103 | " | 10 K " |
| R229 | " -473 | " | 47 K " |
| R230 | " -104 | " | 100 K " |
| R231 | " -102 | " | 1 K " |
| R232 | " -102 | " | 1 K " |
| R233 | " -153 | " | 15 K " |
| R234 | " -103 | " | 10 K " |
| R235 | " -681 | " | 680 " " |
| R236 | SCV0047-501 | VR | 500 " " |
| R237 | QRD167J-681 | CR | 680 1/6 W J |
| R238 | " -101 | " | 100 " " |
| R239 | " -561 | " | 560 " " |
| R240 | " -331 | " | 330 " " |
| R241 | " -152 | " | 1.5 K " |
| R242 | " -272 | " | 2.7 K " |
| R243 | " -102 | " | 1 K " |
| R244 | " -152 | " | 1.5 K " |
| R245 | " -472 | " | 4.7 K " |
| R246 | " -332 | " | 3.3 K " |
| R247 | " -103 | " | 10 K " |
| R248 | " -152 | " | 1.5 K " |
| R249 | " -101 | " | 100 " " |
| R250 | " -223 | " | 22 K " |
| R251 | " -273 | " | 27 K " |
| R252 | " -273 | " | 27 K " |
| R253 | " -222 | " | 2.2 K " |
| R254 | " -331 | " | 330 " " |
| R255 | " -152 | " | 1.5 K " |
| R256 | GC31868-101 | MFR | 100 1/4 W F |
| R257 | QRD161J-750 | CR | 75 1/6 W J |
| R258 | GC31868-101 | MFR | 100 1/4 W F |
| R259 | QRD167J-153 | CR | 15 K 1/6 W J |
| R260 | " -273 | " | 27 K " |
| R261 | " -332 | " | 3.3 K " |
| R262 | " -101 | " | 100 " " |
| R300 | QRD167J-273 | CR | 27 K 1/6 W J |
| C 1 | QET61EM-476 | E Cap | 47 25 V |
| C 2 | " -106 | " | 10 " " |
| C 3 | QCS31HJ-470 | C Cap (NTSC) | 47 P 50 V |
| C 4 | " -101 | " (NTSC) | 100 P " " |
| C 5 | " -560 | " | 56 P " N |
| C 6 | QFM31HK-104 | MY Cap | 0.1 " " |
| C 7 | QET61EM-476 | E Cap | 47 25 V |
| C 8 | QEE41EM-105 | T Cap | 1 " " |
| C 9 | QET61EM-107 | E Cap | 100 " " |
| C10 | " -107 | " | 100 " " |
| C11 | QEE41EM-475 | T Cap | 4.7 " " |
| C12 | QFM31HK-333 | MY Cap | 0.033 50 V |
| C13 | QET61EM-476 | E Cap | 47 25 V |
| C14 | QFM31HK-102 | MY Cap | 0.001 50 V |
| C15 | QCT25UJ-101 | C Cap UJ | 100 P " N |
| C16 | " -220 | " | 22 P " " |
| C17 | QFM31HK-333 | MY Cap | 0.033 " " |
| C18 | QET61EM-106 | E Cap | 10 25 V |
| C19 | " -107 | " | 100 " " |
| C20 | " -476 | " | 47 " " |
| C21 | QET61AM-227 | " | 220 10 V |
| C22 | QET61EM-476 | " | 47 25 V |
| C23 | QFM31HK-333 | MY Cap | 0.033 50 V |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|--------------|--------------|
| C24 | QCT25UJ-151 | C Cap UJ | 150 P 50 V N |
| C25 | QFM31HK-333 | MY Cap | 0.033 " " |
| C26 | " -333 | " | 0.033 " " |
| C27 | " -333 | " | 0.033 " " |
| C28 | " -333 | " | 0.033 " " |
| C29 | " -333 | " | 0.033 " " |
| C30 | " -333 | " | 0.033 " " |
| C31 | QET61EM-476 | E Cap | 47 25 V |
| C32 | QFM31HK-333 | MY Cap | 0.033 50 V |
| C33 | " -333 | " | 0.033 " " |
| C34 | QEE41EM-105 | T Cap | 1 25 V |
| C35 | QRT41AR-107 | E Cap | 100 " " |
| C36 | QET61EM-107 | " | 100 " " |
| C37 | QEE41EM-475 | T Cap | 4.7 " " |
| C38 | QFM31HK-333 | MY Cap | 0.033 50 V |
| C39 | QET61EM-476 | E Cap | 47 25 V |
| C40 | " -106 | " | 10 " " |
| C41 | " -106 | " | 10 " " |
| C42 | " -106 | " | 10 " " |
| C43 | " -106 | " | 10 " " |
| C44 | " | " | " |
| C45 | QET61EM-106 | E Cap | 10 25 V |
| C46 | " -476 | " | 47 " " |
| C47 | " -476 | " | 47 " " |
| C48 | " -107 | " | 100 " " |
| C49 | QCS31HJ-120 | C Cap | 12 P 50 V N |
| C50 | QFM31HK-103 | MY Cap | 0.01 " " |
| C51 | QET61EM-107 | E Cap | 100 25 V |
| C52 | QFM31HK-333 | MY Cap | 0.033 50 V |
| C53 | QET61EM-476 | E Cap | 47 25 V |
| C54 | QCS31HJ-470 | C Cap (PAL) | 47 P 50 V |
| C55 | QAT3001-010 | TR Cap | 300 P 250 V |
| C56 | QCS31HJ-151 | C Cap (PAL) | 150 P 50 V |
| C57 | QET61EM-476 | E Cap | 47 25 V |
| C58 | QFM31HK-333 | MY Cap | 0.033 50 V |
| C59 | QCS31HJ-121 | C Cap | 120 P " " |
| C60 | " -101 | " | 100 P " " |
| C61 | " -101 | " | 100 P " " |
| C62 | QFM31HK-153 | MY Cap | 0.015 " " |
| C63 | " | " | " |
| C64 | QCS31HJ-101 | C Cap | 100 P 50 V |
| C65 | QFM31HK-103 | MY Cap | 0.01 " " |
| C66 | QCS31HJ-470 | C Cap | 47 P " " |
| C67 | QFM31HK-333 | MY Cap | 0.033 " " |
| C68 | " -333 | " | 0.033 " " |
| C69 | QET61EM-106 | E Cap | 10 25 V |
| C70 | " -476 | " | 47 " " |
| C71 | " -107 | " | 100 " " |
| C72 | QCS31HJ-220 | C Cap (NTSC) | 22 P 50 V |
| C73 | QFM31HK-103 | MY Cap | 0.01 " " |
| C74 | QET61EM-107 | E Cap | 100 25 V |
| C75 | QFM31HK-333 | MY Cap | 0.033 50 V |
| C76 | QET61EM-476 | E Cap | 47 25 V |
| C77 | QCS31HJ-470 | C Cap (PAL) | 47 P 50 V |
| C78 | QAT3001-010 | TR Cap | 300 P 250 V |
| C79 | QCS31HJ-470 | C Cap (PAL) | 47 P 50 V |
| C80 | QFM31HK-333 | MY Cap | 0.033 " " |
| C81 | QET61EM-476 | E Cap | 47 25 V |
| C82 | QCS31HJ-121 | C Cap | 120 P 50 V |
| C83 | " -101 | " | 100 P " " |
| C84 | QFM31HK-153 | MY Cap | 0.015 " " |
| C85 | " -333 | " | 0.033 " " |
| C86 | QCS31HJ-101 | C Cap | 100 P " " |
| C87 | QFM31HK-103 | MY Cap | 0.01 " " |
| C88 | QCS31HJ-470 | C Cap | 47 P " " |

| Symbol No. | Part No. | Part Name | Description |
|-------------|--------------|--------------|-------------|
| C89 | QFM31HK-333 | MY Cap | 0.033 50 V |
| C90 | " -333 | " | 0.033 " " |
| C91 | QET61EM-106 | E Cap | 10 25 V |
| C92 | " -476 | " | 47 " " |
| C93 | " -476 | " | 47 " " |
| C94 | " -107 | " | 100 " " |
| C95 | " -107 | " | 100 " " |
| C96 | QCS31HJ-101 | C Cap (NTSC) | 100 P 50 V |
| C97 | QFM31HK-102 | MY Cap | 0.001 " " |
| C98 | QET61EM-476 | E Cap | 47 25 V |
| C99 | " -106 | " | 10 " " |
| C100 | " -106 | " | 10 " " |
| C101 | " -106 | " | 10 " " |
| C102 | " -476 | " | 47 " " |
| C103 | QCS31HJ-271 | C Cap | 27 P 50 V |
| C104 | " -221 | " | 220 P " " |
| C105 | QET61EM-476 | E Cap | 47 25 V |
| C106 | " -107 | " | 100 " " |
| C107 | QFM31HK-333 | MY Cap | 0.033 50 V |
| C108 | QET61EM-476 | E Cap | 47 25 V |
| C109 | " -476 | " | 47 " " |
| C110 | " -476 | " | 47 " " |
| C111 | " -107 | " | 100 25 V |
| C112 | QCS31HJ-101 | C Cap | 100 P 50 V |
| C113 | QET61EM-476 | E Cap | 47 25 V |
| C114 | QCS31HJ-101 | C Cap (PAL) | 100 P 50 V |
| C115 | " -101 | " (") | 100 P " " |
| C116 | QCF31EZ-103 | " (") | 0.01 25 V N |
| C117 | " -103 | " (") | 0.01 " " |
| C118 | " -103 | " (") | 0.01 " " |
| C119 | " -103 | " (") | 0.01 " " |
| C120 | QET61EM-106 | E Cap | 10 " " |
| L 1 | " | " | " |
| L 2 | PU48530-330K | Peaking Coil | 33 μ H |
| L 3 | " -150K | " | 15 μ H |
| L 4 | " -470K | " | 47 μ H |
| L 5 | " -220K | " | 22 μ H |
| L 6 | " -330K | " | 33 μ H |
| L 7 | " -100K | " | 10 μ H |
| L 8 | " -221K | " | 220 μ H |
| L 9 | " -220K | " | 22 μ H |
| L10 | " -330K | " | 33 μ H |
| L11 | " -100K | " | 10 μ H |
| L12 | " -221K | " | 220 μ H |
| L13 | " -220K | " | 22 μ H |
| TP 1 | SCV0025-102 | Test Point | " |
| TP 2 | " -102 | " | " |
| TP 3 | " -102 | " | " |
| SCV0304-00P | | Connector | 53 Pin |
| SCV0296-001 | | Card Pra. | " |

8.1.5 SG Board Ass'y SCK1043-00A (NTSC)

(1) SG BOARD BASE SCK1043-00B (PAL)

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-------------|----------------|
| IC 1 | TC4009UBP | I.C. | TOSHIBA |
| IC 2 | " | " | " |
| IC 3 | TA78L012AP | " | " (12 V) |
| D 1 | HZ16L2 | Zener Diode | HITACHI (16 V) |
| D 2 | " | " | " (16 V) |
| D 3 | " | " | " (16 V) |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| Q 2 | 2SA564R | " | " |
| Q 3 | 2SC828R | " | " |
| Q 4 | 2SA564R | " | " |
| Q 5 | 2SC828R | " | " |
| Q 6 | 2SA564R | " | " |
| Q 7 | 2SC828R | " | " |
| Q 8 | 2SA564R | " | " |
| Q 9 | 2SC828R | " | " |
| Q10 | " | " | " |
| Q11 | 2SA564R | " | " |
| Q12 | 2SC828R | " (PAL) | " |
| Q13 | 2SA564R | " (") | " |
| Q14 | 2SC828R | " | " |
| Q15 | " | " | " |
| Q16 | " | " | " |
| Q17 | " | " | " |
| Q18 | " | " | " |
| Q19 | " | " | " |
| Q20 | " | " | " |
| Q21 | " | " | " |
| Q22 | " | " | " |
| R 1 | QRD167J-473 | CR | 47 K 1/6 W J |
| R 2 | " -331 | " | 330 " " |
| R 3 | " -473 | " | 47 K " " |
| R 4 | " -473 | " | 47 K " " |
| R 5 | " -152 | " | 1.5 K " " |
| R 6 | " -152 | " | 1.5 K " " |
| R 7 | " -473 | " | 47 K " " |
| R 8 | " -331 | " | 330 " " |
| R 9 | " -473 | " | 47 K " " |
| R10 | " -473 | " | 47 K " " |
| R11 | " -152 | " | 1.5 K " " |
| R12 | " -152 | " | 1.5 K " " |
| R13 | " -473 | " | 47 K " " |
| R14 | " -331 | " | 330 " " |
| R15 | " -473 | " | 47 K " " |
| R16 | " -473 | " | 47 K " " |
| R17 | " -152 | " | 1.5 K " " |
| R18 | " -152 | " | 1.5 K " " |
| R19 | " -473 | " | 47 K " " |
| R20 | " -331 | " | 330 " " |
| R21 | " -473 | " | 47 K " " |
| R22 | " -473 | " | 47 K " " |
| R23 | " -152 | " | 1.5 K " " |
| R24 | " -152 | " | 1.5 K " " |
| R25 | " -473 | " | 47 K " " |
| R26 | " -331 | " | 330 " " |
| R27 | " -473 | " | 47 K " " |
| R28 | " -222 | " | 2.2 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R29 | SCV0047-202 | VR | 2 K |
| R30 | QRD167J-101 | CR | 100 1/6 W J |
| R31 | " -473 | " | 47 K " " |
| R32 | " -331 | " | 330 " " |
| R33 | " -473 | " | 47 K " " |
| R34 | " -152 | " | 1.5 K " " |
| R35 | " -473 | " | 47 K " " |
| R36 | " -152 | " | 1.5 K " " |
| R37 | " -473 | " (PAL) | 47 K " " |
| R38 | " -750 | " (PAL) | 75 " " |
| R39 | " -473 | " (PAL) | 47 K " " |
| R40 | " -152 | " (PAL) | 1.5 K " " |
| R41 | " -473 | " (PAL) | 47 K " " |
| R42 | " -152 | " (PAL) | 1.5 K " " |
| R43 | " | " | " |
| R44 | SCV0047-103 | VR | 10 K |
| R45 | QRD167J-223 | CR | 22 K 1/6 W J |
| R46 | " -331 | " | 330 " " |
| R47 | " -103 | " | 10 K " " |
| R48 | GC31868-270 | MFR | 27 1/4 W F |
| R49 | QRD167J-152 | CR | 1.5 K 1/6 W J |
| R50 | GC31868-101 | MFR | 100 1/4 W F |
| R51 | QRD167J-750 | CR | 75 1/6 W J |
| R52 | " | " | " |
| R53 | SCV0047-103 | VR | 10 K |
| R54 | QRD167J-223 | CR | 22 K 1/6 W J |
| R55 | " -331 | " | 330 " " |
| R56 | " -103 | " | 10 K " " |
| R57 | GC31868-270 | MFR | 27 1/4 W F |
| R58 | QRD167J-152 | CR | 1.5 K 1/6 W J |
| R59 | GC31868-101 | MFR | 100 1/4 W F |
| R60 | QRD167J-750 | CR | 75 " " |
| R61 | " | " | " |
| R62 | SCV0047-103 | VR | 10 K |
| R63 | QRD167J-223 | CR | 22 K 1/6 W J |
| R64 | " -331 | " | 330 " " |
| R65 | " -103 | " | 10 K " " |
| R66 | GC31868-270 | MFR | 27 1/4 W F |
| R67 | QRD167J-152 | CR | 1.5 K 1/6 W J |
| R68 | GC31868-270 | MFR | 27 1/4 W F |
| R69 | QRD167J-750 | CR | 75 1/6 W J |
| C 1 | QET61EM-107 | E Cap | 100 25 V |
| C 2 | " -107 | " | 100 " " |
| C 3 | " -107 | " | 100 " " |
| C 4 | " -107 | " | 100 " " |
| C 5 | " -106 | " | 10 " " |
| C 6 | " -106 | " | 10 " " |
| C 7 | " -106 | " | 10 " " |
| C 8 | " -106 | " | 10 " " |
| C 9 | " -106 | " | 10 " " |
| C10 | " -106 | " | 10 " " |
| C11 | " -106 | " | 10 " " |
| C12 | " -106 | " | 10 " " |
| C13 | QCS31HJ-101 | C.E. Cap | 100 P 50 V |
| C14 | QET61EM-107 | E Cap | 100 25 V |
| C15 | QFM31HK-104 | MY Cap | 0.1 50 V |
| C16 | QET61EM-106 | E Cap | 10 25 V |
| C17 | QCS31HJ-101 | C.E. Cap | 100 P 50 V |
| C18 | QET61EM-106 | E Cap | 10 25 V |
| C19 | " -106 | " (PAL) | 10 50 V |
| C20 | " -106 | " (PAL) | 10 " " |
| C21 | QET61EM-107 | E Cap | 100 25 V |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|---------------|-------------|
| C22 | QFM31HK-104 | MY Cap (NTSC) | 0.1 50 V |
| C23 | QET61EM-107 | E Cap | 100 25 V |
| C24 | " -107 | " | 100 " " |
| C25 | " -107 | " | 100 " " |
| C26 | " -107 | " | 100 " " |
| C27 | QFM31HK-104 | MY Cap | 0.1 50 V |
| S 1 | QSS6201-002 | Slide Switch | " |
| S 2 | QSS2201-022 | " | " |

(2) SG BOARD (NTSC)

| Symbol No. | Part No. | Part Name | Description |
|------------|------------|-----------------|---------------|
| X 1 | 2SA564R | Transistor | MATSUSHITA |
| X 2 | 2SC829C | " | " |
| X 3 | " | " | " |
| X 4 | " | " | " |
| X 5 | " | " | " |
| X 6 | " | " | " |
| X 7 | " | " | " |
| X 8 | " | " | " |
| X 9 | " | " | " |
| X10 | " | " | " |
| X11 | " | " | " |
| X12 | " | " | " |
| X13 | " | " | " |
| X14 | 2SA564R | Transistor | MATSUSHITA |
| X15 | 2SC828R | " | " |
| X16 | " | " | " |
| X17 | " | " | " |
| X18 | " | " | " |
| X19 | " | " | " |
| X20 | " | " | " |
| X21 | " | " | " |
| X22 | 2SA564R | " | " |
| X23 | 2SC828R | " | " |
| X24 | 2SA564R | " | " |
| X25 | 2SC828R | " | " |
| X26 | " | " | " |
| X27 | 2SA564R | " | " |
| X28 | 2SC828R | " | " |
| X29 | " | " | " |
| X30 | " | " | " |
| IC 1 | TA78L008AP | I.C. | TOSHIBA (8 V) |
| IC 2 | HA11247 | " | HITACHI |
| IC 3 | NJM4560D | " | JRC |
| IC 4 | TC4098BP | " | TOSHIBA |
| IC 5 | " | " | " |
| IC 6 | HA11244 | " | HITACHI |
| IC 7 | TC4053BP | " | TOSHIBA |
| IC 8 | HD44007A | " | HITACHI |
| IC 9 | TC4528BP | " | TOSHIBA |
| IC10 | TC4049UBP | " | " |
| IC11 | TC4001BP | " | " |
| IC12 | TC4050BP | " | " |
| IC13 | TC4011BP | " | " |
| IC14 | TC4528BP | " | " |
| IC15 | TC4023BP | " | " |
| IC16 | TC4015BP | " | " |
| IC17 | " | " | " |
| D 1 | " | " | " |
| D 2 | 1S1555 | Silicon Diode | HITACHI |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | 1S2688G | Vari. Cap Diode | JRC |
| D 6 | " | " | " |
| D 7 | 1S1555 | Silicon Diode | HITACHI |
| D 8 | OA91 | Germanium Diode | MATSUSHITA |
| D 9 | HZ772C/L | Zener Diode | 7 V HITACHI |
| D10 | 1S1555 | Silicon Diode | HITACHI |

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|-----------|---------------|
| R 1 | QRD187J-750A | CR | 75 1/8 W J |
| R 2 | " -103A | " | 10 K " |
| R 3 | " -473A | " | 47 K " |
| R 4 | " -102A | " | 1 K " |
| R 5 | " -333A | " | 33 K " |
| R 6 | " -123A | " | 12 K " |
| R 7 | " -102A | " | 1 K " |
| R 8 | " -152A | " | 1.5 K " |
| R 9 | " -273A | " | 27 K " |
| R10 | " -102A | " | 1 K " |
| R11 | " -102A | " | 1 K " |
| R12 | GC31868-561 | MFR | 560 1/4 W F |
| R13 | QRD187J-821A | CR | 820 1/8 W J |
| R14 | " -821A | " | 820 " |
| R15 | GC31868-561 | MFR | 560 1/4 W F |
| R16 | QRD187J-681A | CR | 680 1/8 W J |
| R17 | " -681A | " | 680 " |
| R18 | SCV0046-202 | VR | 2 K |
| R19 | QRD187J-393A | CR | 39 K 1/8 W J |
| R20 | " -123A | " | 12 K " |
| R21 | " -222A | " | 2.2 K " |
| R22 | " -123A | " | 12 K " |
| R23 | " -103A | " | 10 K " |
| R24 | " -822A | " | 8.2 K " |
| R25 | " -472A | " | 4.7 K " |
| R26 | " -472A | " | 4.7 K " |
| R27 | " -680A | " | 68 " |
| R28 | " -681A | " | 680 " |
| R29 | " -223A | " | 22 K " |
| R30 | " -473A | " | 47 K " |
| R31 | " -821A | " | 820 " |
| R32 | " -223A | " | 22 K " |
| R33 | " -122A | " | 1.2 K " |
| R34 | " -562A | " | 5.6 K " |
| R35 | " -332A | " | 3.3 K " |
| R36 | SCV0047-501 | VR | 500 |
| R37 | QRD187J-472A | CR | 4.7 K 1/8 W J |
| R38 | " -224A | " | 220 K " |
| R39 | " -152A | " | 1.5 K " |
| R40 | " -153A | " | 15 K " |
| R41 | " -222A | " | 2.2 K " |
| R42 | " | " | " |
| R43 | QRD187J-681A | CR | 680 1/8 W J |
| R44 | " -153A | " | 15 K " |
| R45 | " -105A | " | 1 M " |
| R46 | " -223A | " | 22 K " |
| R47 | " -103A | " | 10 K " |
| R48 | " -683A | " | 68 K " |
| R49 | " -332A | " | 3.3 K " |
| R50 | " -271A | " | 270 " |
| R51 | " -561A | " | 560 " |
| R52 | " -332A | " | 3.3 K " |
| R53 | " -102A | " | 1 K " |
| R54 | " -563A | " | 56 K " |
| R55 | " -273A | " | 27 K " |
| R56 | " -152A | " | 1.5 K " |
| R57 | " -100A | " | 10 " |
| R58 | " -223A | " | 22 K " |
| R59 | " -152A | " | 1.5 K " |
| R60 | " -333A | " | 33 K " |
| R61 | " -152A | " | 1.5 K " |
| R62 | " -152A | " | 1.5 K " |
| R63 | " -473A | " | 47 K " |

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|-----------|---------------|
| R64 | QRD187J-273A | CR | 27 K 1/8 W J |
| R65 | " -562A | " | 5.6 K " |
| R66 | " -682A | " | 6.8 K " |
| R67 | " -392A | " | 3.9 K " |
| R68 | " -392A | " | 3.9 K " |
| R69 | " -472A | " | 4.7 K " |
| R70 | " -332A | " | 3.3 K " |
| R71 | " -332A | " | 3.3 K " |
| R72 | " -682A | " | 6.8 K " |
| R73 | " -682A | " | 6.8 K " |
| R74 | " -103A | " | 10 K " |
| R75 | " -103A | " | 10 K " |
| R76 | " -683A | " | 68 K " |
| R77 | GC31868-563 | MFR | 56 K 1/4 W F |
| R78 | QRD187J-152A | CR | 1.5 K 1/8 W J |
| R79 | " -100A | " | 10 " |
| R80 | GC31868-562 | MFR | 5.6 K 1/4 W F |
| R81 | SCV0046-203 | VR | 20 K |
| R82 | GC31868-823 | MFR | 82 K 1/4 W F |
| R83 | QRD187J-472A | CR | 4.7 K 1/8 W J |
| R84 | " -561A | " | 560 " |
| R85 | " -472A | " | 4.7 K " |
| R86 | GC31868-822 | MFR | 8.2 K 1/4 W F |
| R87 | QRD187J-562A | CR | 5.6 K 1/8 W J |
| R88 | " -823A | " | 82 K " |
| R89 | " -223A | " | 22 K " |
| R90 | " -104A | " | 100 K " |
| R91 | " -105A | " | 1 M " |
| R92 | SCV0047-203 | VR | 20 K |
| R93 | GC31868-104 | MFR | 100 K 1/4 W F |
| R94 | " -472 | " | 4.7 K " |
| R95 | " -392 | " | 3.9 K " |
| R96 | QRD187J-104A | CR | 100 K 1/8 W J |
| R97 | " -105A | " | 1 M " |
| R98 | " -103A | " | 10 K " |
| R99 | " -821A | " | 820 " |
| R100 | " -272A | " | 2.7 K " |
| R101 | GC31868-473 | MFR | 47 K 1/4 W F |
| R102 | SCV0046-303 | VR | 30 K |
| R103 | QRD187J-154A | CR | 150 K 1/8 W J |
| R104 | " -683A | " | 68 K " |
| R105 | " -152A | " | 1.5 K " |
| R106 | " -472A | " | 4.7 K " |
| R107 | " -152A | " | 1.5 K " |
| R108 | " -103A | " | 10 K " |
| R109 | " -102A | " | 1 K " |
| R110 | " -683A | " | 68 K " |
| R111 | " -152A | " | 1.5 K " |
| R112 | " -392A | " | 3.9 K " |
| R113 | GC31868-473 | MFR | 47 K 1/4 W F |
| R114 | SCV0047-303 | VR | 30 K |
| R115 | QRD187J-683A | CR | 68 K 1/8 W J |
| R116 | " -822A | " | 8.2 K " |
| R117 | " -101A | " | 100 " |
| R118 | " -560A | " | 56 " |
| C 1 | QET41ER-107 | E Cap | 100 25 V |
| C 2 | " -107 | " | 100 " |
| C 3 | " -107 | " | 100 " |
| C 4 | QET41AR-476 | E Cap | 47 10 V |
| C 5 | OCT05UJ-151 | C Cap | 150 P 50 V |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-------------|-------------|
| C 6 | OCT05UJ-220 | C Cap | 22 P 50 V |
| C 7 | QFN41HK-103 | MY Cap | 0.01 " |
| C 8 | QFF41HJ-101 | MC Cap | 100 P " |
| C 9 | " -101 | " | 100 P " |
| C10 | " -560 | " | 56 P " |
| C11 | QFN41HK-103 | MY Cap | 0.01 " |
| C12 | " -103 | " | 0.01 " |
| C13 | " -103 | " | 0.01 " |
| C14 | QET41AR-476 | E Cap | 47 10 V |
| C15 | QFN41HK-104 | M Cap | 0.1 50 V |
| C16 | OCT05UJ-101 | C Cap (PAL) | 100 P " |
| | " -151 | " (NTSC) | 150 P " |
| C17 | QFN41HK-102 | MY Cap | 0.001 " |
| C18 | " -103 | " | 0.01 " |
| C19 | " -102 | " | 0.001 " |
| C20 | OCT05UJ-180 | C Cap | 18 P " |
| C21 | QET41ER-475 | E Cap | 4.7 25 V |
| C22 | QFN41HK-473 | MY Cap | 0.047 50 V |
| C23 | QET41ER-106 | E Cap | 10 25 V |
| C24 | QET41AR-476 | " | 47 10 V |
| C25 | " -476 | " | 47 " |
| C26 | QCS11HJ-390 | C Cap | 39 P 50 V |
| C27 | QFN41HK-104 | MY Cap | 0.1 " |
| C28 | QEN41HA-105 | NP Cap | 1 " |
| C29 | QCS11HJ-101 | C Cap | 100 P " |
| C30 | QFF41HJ-151 | MY Cap | 150 P " |
| C31 | QET41HR-105 | E Cap | 1 " |
| C32 | QEN41HA-105 | NP Cap | 1 " |
| C33 | " -105 | " | 1 " |
| C34 | QET41AR-476 | E Cap | 47 10 V |
| C35 | QCF11EZ-223 | C Cap | 0.022 50 V |
| C36 | QFN41HK-472 | MY Cap | 0.0047 " |
| C37 | " -102 | " | 0.001 " |
| C38 | " -103 | " | 0.01 " |
| C39 | QCF11HJ-223 | C Cap | 0.022 " |
| C40 | QFN41HK-102 | MY Cap | 0.001 " |
| C41 | QFF41HJ-181 | MC Cap | 180 P " |
| C42 | QFN41HK-333 | MY Cap | 0.033 " |
| C43 | QFF41HJ-181 | MC Cap | 180 P " |
| C44 | QCS11HJ-120 | C Cap | 12 P " |
| C45 | QFN41HK-333 | MY Cap | 0.033 " |
| C46 | " -103 | " | 0.01 " |
| C47 | QFF41HJ-561 | MC Cap | 560 P " |
| C48 | QET41ER-475 | E Cap | 4.7 25 V |
| C49 | " -475 | " | 47 " |
| C50 | QFN41HK-103 | MY Cap | 0.01 50 V |
| C51 | QEE41VM-474 | T Cap | 0.47 35 V |
| C52 | QFN41HK-103 | MY Cap | 0.01 50 V |
| C53 | QCS11HJ-181 | C Cap | 180 P " |
| C54 | " | " | " |
| C55 | OCT05UJ-101 | C Cap | 100 P 50 V |
| C56 | QCS11WK-820 | " | 82 P " |
| C57 | QFN41HK-103 | MY Cap | 0.01 " |
| C58 | " -103 | " | 0.01 " |
| C59 | QCS11WK-681 | C Cap | 68 P " |
| C60 | QAT3001-006 | Trimmer Cap | 50 P " |
| C61 | QCF11EZ-473 | C Cap | 0.047 50 V |
| C62 | QET41AR-476 | E Cap | 47 10 V |
| C63 | QCF11EZ-473 | C Cap | 0.047 50 V |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|----------------|--------------|
| C64 | " | " | " |
| C65 | OCT05UJ-181 | C Cap | 180 P 50 V |
| C66 | QFN41HK-333 | MY Cap | 0.033 " |
| C67 | QCS11HJ-470 | C Cap | 47 P " |
| C68 | QET41ER-106 | E Cap | 10 25 V |
| C69 | QCS11HJ-221 | C Cap | 220 P 50 V |
| C70 | " -561 | " | 560 P " |
| C71 | QFF41HJ-240 | MC Cap | 24 P " |
| C72 | QFN41HK-102 | MY Cap | 0.001 " |
| C73 | " -102 | " | 0.001 " |
| C74 | " -103 | " | 0.01 " |
| C75 | " -103 | " | 0.01 " |
| C76 | QCS11HJ-470 | C Cap | 47 P " |
| C77 | QET41AR-227 | E Cap | 220 10 V |
| L 1 | PU48530-120 | Peaking Coil | 12 μ H |
| L 2 | " -820 | " | 82 μ H |
| L 3 | " -220 | " | 22 μ H |
| L 4 | " -120 | " | 12 μ H |
| L 5 | " -820 | " | 82 μ H |
| L 6 | SCV0100-001 | Coil | " |
| L 7 | PU48530-100 | Peaking Coil | 10 μ H |
| L 8 | A04096-1000 | " | 1 mH |
| | SC40338-001 | Shield Case | " |
| S 1 | SCV0024-001 | Slide Switch | " |
| S 2 | " -001 | " | " |
| X-TAL | GP32470-001 | Crystal (NTSC) | 14.31818 MHz |
| CN1 | SCV0070-00P | Connector | 22 Pins |

(3) SG BOARD (PAL)

| Symbol No. | Part No. | Part Name | Description |
|------------|------------|--------------------|--------------------|
| X 1 | 2SA564R | Transistor | MATSUSHITA |
| X 2 | 2SC828R | " | " |
| X 3 | " | " | " |
| X 4 | " | " | " |
| X 5 | " | " | " |
| X 6 | " | " | " |
| X 7 | " | " | " |
| X 8 | 2SA564R | " | " |
| X 9 | " | " | " |
| X10 | 2SC828R | " | " |
| X11 | " | " | " |
| X12 | " | " | " |
| X13 | " | " | " |
| X14 | " | " | " |
| X15 | " | " | " |
| X16 | " | " | " |
| X17 | 2SA564R | " | " |
| X18 | 2SC828R | " | " |
| X19 | " | " | " |
| X20 | " | " | " |
| X21 | 2SA564R | " | " |
| X22 | 2SC828R | " | " |
| X23 | 2SA564R | " | " |
| X24 | 2SC828R | " | " |
| X25 | 2SA564R | " | " |
| X26 | 2SC828R | " | " |
| X27 | 2SK153 | " | " |
| X28 | 2SC828R | " | " |
| X29 | " | " | " |
| X30 | 2SA564R | " | " |
| X31 | 2SC828R | " | " |
| X32 | 2SA719R | " | " |
| IC 1 | TA78L008AP | Integrated Circuit | 8V REG. TOSHIBA |
| IC 2 | HA11247 | " | HITACHI |
| IC 3 | NJM4560D | " | JRC |
| IC 4 | DN819 | " | MATSUSHITA |
| IC 5 | " | " | " |
| IC 6 | μPC324C | " | NEC |
| IC 7 | AN614 | " | MATSUSHITA |
| IC 8 | " | " | " |
| IC 9 | CD4053BE | " | RCA |
| IC10 | HD44007 | " | HITACHI |
| IC11 | TC45288P | " | TOSHIBA |
| IC12 | " | " | " |
| IC13 | " | " | " |
| IC14 | HA11244 | " | HITACHI |
| IC15 | TC45288P | " | TOSHIBA |
| IC16 | TC4049BP | " | " |
| IC17 | TC4010BP | " | " |
| IC18 | TC4011BP | " | " |
| IC19 | TC4001BP | " | " |
| D 1 | 1S1555 | Silicon Diode | HITACHI |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | " | " | " |
| D 6 | " | " | " |
| D 7 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|-----------------|---------------|
| D 8 | 1S2688G | Vari. Cap Diode | HITACHI |
| D 9 | 0A91 | Germanium Diode | MATSUSHITA |
| D10 | HZ712C/L | Zener Diode | HITACHI |
| D11 | 1S1555 | Silicon Diode | " |
| D12 | SVC321A | Vari. Cap Diode | " |
| D13 | 1S2688G | " | " |
| R 1 | ORD187J-750A | CR | 75 1/8 W J |
| R 2 | " -103A | " | 10 K " " |
| R 3 | " -473A | " | 47 K " " |
| R 4 | " -102A | " | 1 K " " |
| R 5 | " -333A | " | 33 K " " |
| R 6 | " -123A | " | 12 K " " |
| R 7 | " -102A | " | 1 K " " |
| R 8 | " -152A | " | 1.5 K " " |
| R 9 | " -223A | " | 22 K " " |
| R10 | " -273A | " | 27 K " " |
| R11 | " -102A | " | 1 K " " |
| R12 | " -102A | " | 1 K " " |
| R13 | GC31868-561 | MFR | 560 1/4 W F |
| R14 | ORD187J-821A | CR | 820 1/8 W J |
| R15 | " -821A | " | 820 " " |
| R16 | GC31868-561 | MFR | 560 1/4 W F |
| R17 | ORD187J-681A | CR | 680 1/8 W J |
| R18 | " -681A | " | 680 " " |
| R19 | SCV0046-202 | VR | 2 K |
| R20 | ORD187J-393A | CR | 39 K 1/8 W J |
| R21 | " -123A | " | 12 K " " |
| R22 | " -222A | " | 2.2 K " " |
| R23 | " -122A | " | 1.2 K " " |
| R24 | " -123A | " | 12 K " " |
| R25 | " -103A | " | 10 K " " |
| R26 | " -822A | " | 8.2 K " " |
| R27 | " -472A | " | 4.7 K " " |
| R28 | " -472A | " | 4.7 K " " |
| R29 | " -152A | " | 1.5 K " " |
| R30 | " -680A | " | 68 " " |
| R31 | " -152A | " | 1.5 K " " |
| R32 | " -332A | " | 3.3 K " " |
| R33 | " -473A | " | 4.7 K " " |
| R34 | " -223A | " | 22 K " " |
| R35 | " -821A | " | 820 " " |
| R36 | " -562A | " | 5.6 K " " |
| R37 | " -332A | " | 3.3 K " " |
| R38 | SCV0047-102 | VR | 1 K |
| R39 | ORD187J-472A | CR | 4.7 K 1/8 W J |
| R40 | " -224A | " | 220 K " " |
| R41 | " -271A | " | 270 " " |
| R42 | " -561A | " | 560 " " |
| R43 | " -222A | " | 2.2 K " " |
| R44 | " | " | " |
| R45 | ORD187J-102A | CR | 1 K 1/8 W J |
| R46 | " -563A | " | 56 K " " |
| R47 | " -273A | " | 27 K " " |
| R48 | " | " | " |
| R49 | ORD187J-152A | CR | 1.5 K 1/8 W J |
| R50 | " -223A | " | 22 K " " |
| R51 | " -392A | " | 3.9 K " " |
| R52 | " -333A | " | 33 K " " |
| R53 | " -392A | " | 3.9 K " " |
| R54 | " -222A | " | 2.2 K " " |
| R55 | " -473A | " | 47 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|-----------|---------------|
| R56 | ORD187J-103A | CR | 10 K 1/8 W J |
| R57 | " -683A | " | 68 K " " |
| R58 | " -332A | " | 3.3 K " " |
| R59 | " -472A | " | 4.7 K " " |
| R60 | " -392A | " | 3.9 K " " |
| R61 | " -102A | " | 1 K " " |
| R62 | " -102A | " | 1 K " " |
| R63 | " -152A | " | 1.5 K " " |
| R64 | " -473A | " | 47 K " " |
| R65 | " -392A | " | 3.9 K " " |
| R66 | " -562A | " | 5.6 K " " |
| R67 | " -682A | " | 6.8 K " " |
| R68 | " -392A | " | 3.9 K " " |
| R69 | " -392A | " | 3.9 K " " |
| R70 | " -472A | " | 4.7 K " " |
| R71 | " -332A | " | 3.3 K " " |
| R72 | " -332A | " | 3.3 K " " |
| R73 | " -682A | " | 6.8 K " " |
| R74 | " -682A | " | 6.8 K " " |
| R75 | " -103A | " | 10 K " " |
| R76 | " -103A | " | 10 K " " |
| R77 | " -224A | " | 220 K " " |
| R78 | " -473A | " | 47 K " " |
| R79 | " -102A | " | 1 K " " |
| R80 | " -104A | " | 100 K " " |
| R81 | " | " | " |
| R82 | ORD187J-104A | " | 100 K 1/8 W J |
| R83 | " -184A | " | 180 K " " |
| R84 | " -104A | " | 100 K " " |
| R85 | " -224A | " | 220 K " " |
| R86 | " -104A | " | 100 K " " |
| R87 | " -224A | " | 220 K " " |
| R88 | " -103A | " | 10 K " " |
| R89 | " -103A | " | 10 K " " |
| R90 | " -332A | " | 3.3 K " " |
| R91 | " -222A | " | 2.2 K " " |
| R92 | " -102A | " | 1 K " " |
| R93 | " -272A | " | 2.7 K " " |
| R94 | " -272A | " | 2.7 K " " |
| R95 | " -103A | " | 10 K " " |
| R96 | " -272A | " | 2.7 K " " |
| R97 | " -272A | " | 2.7 K " " |
| R98 | " -562A | " | 5.6 K " " |
| R99 | " -102A | " | 1 K " " |
| R100 | " -102A | " | 1 K " " |
| R101 | " -471A | " | 470 " " |
| R102 | " -682A | " | 6.8 K " " |
| R103 | " -682A | " | 6.8 K " " |
| R104 | " -332A | " | 3.3 K " " |
| R105 | " -222A | " | 2.2 K " " |
| R106 | " -103A | " | 10 K " " |
| R107 | " -103A | " | 10 K " " |
| R108 | " -472A | " | 4.7 K " " |
| R109 | " -823A | " | 82 K " " |
| R110 | " -683A | " | 68 K " " |
| R111 | " -394A | " | 390 K " " |
| R112 | GC31868-472 | MFR | 4.7 K 1/4 W F |
| R113 | " -392 | " | 3.9 K " " |
| R114 | ORD187J-104A | CR | 100 K 1/8 W J |
| R115 | " -105A | " | 1 M " " |
| R116 | " -272A | " | 2.7 K " " |
| R117 | " -472A | " | 4.7 K " " |
| R118 | " -821A | " | 820 " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|-----------|---------------|
| R119 | ORD187J-105A | CR | 1 M 1/8 W J |
| R120 | " -333A | " | 33 K " " |
| R121 | " -104A | " | 100 K " " |
| R122 | " -104A | " | 100 K " " |
| R123 | " -563A | " | 56 K " " |
| R124 | GC31868-473 | MFR | 47 K 1/4 W F |
| R125 | SCV0046-303 | VR | 30 K |
| R126 | GC31868-562 | MFR | 5.6 K 1/4 W F |
| R127 | " -562 | " | 5.6 K " " |
| R128 | SCV0047-203 | VR | 20 K |
| R129 | GC31868-823 | MFR | 82 K 1/4 W F |
| R130 | SCV0047-203 | VR | 20 K |
| R131 | ORD187J-473A | CR | 47 K 1/8 W J |
| R132 | " -152A | " | 1.5 K " " |
| R133 | " | " | " |
| R134 | ORD187J-472A | CR | 4.7 K 1/8 W J |
| R135 | " -561A | " | 560 " " |
| R136 | " -472A | " | 4.7 K " " |
| R137 | " -562A | " | 5.6 K " " |
| R138 | " -104A | " | 100 K " " |
| R139 | SCV0047-203 | VR | 20 K |
| R140 | ORD187J-273A | CR | 27 K 1/8 W J |
| R141 | " -224A | " | 220 K " " |
| R142 | " -683A | " | 68 K " " |
| R143 | " -272A | " | 2.7 K " " |
| R144 | " -101A | " | 100 " " |
| R145 | " -683A | " | 68 K " " |
| R146 | " -152A | " | 1.5 K " " |
| R147 | " -103A | " | 10 K " " |
| R148 | " -152A | " | 1.5 K " " |
| R149 | " -102A | " | 1 K " " |
| R150 | " -102A | " | 1 K " " |
| R151 | " -222A | " | 2.2 K " " |
| R152 | " -154A | " | 150 K " " |
| R153 | " -224A | " | 220 K " " |
| R154 | " -332A | " | 3.3 K " " |
| C 1 | QET41ER-107 | E Cap | 100 25 V |
| C 2 | " -107 | " | 100 " " |
| C 3 | " -107 | " | 100 " " |
| C 4 | QET41AR-476 | E Cap | 47 10 V |
| C 5 | QCT05UJ-101 | C Cap | 100 P 50 V |
| C 6 | " -220 | " | 22 P " " |
| C 7 | QFN41HK-103 | MY Cap | 0.01 " " |
| C 8 | OFF41HJ-820 | FM Cap | 82 P " " |
| C 9 | " -820 | " | 82 P " " |
| C10 | " -560 | " | 56 P " " |
| C11 | QFN41HK-103 | MY Cap | 0.01 " " |
| C12 | " -103 | " | 0.01 " " |
| C13 | " -103 | " | 0.01 " " |
| C14 | QET41AR-476 | E Cap | 47 10 V |
| C15 | QFN41HK-104 | MY Cap | 0.1 50 V |
| C16 | QCT05UJ-101 | C Cap | 100 P " " |
| C17 | QFN41HK-104 | MY Cap | 0.1 " " |
| C18 | " -102 | " | 0.001 " " |
| C19 | " -102 | " | 0.001 " " |
| C20 | " -103 | " | 0.01 " " |
| C21 | QCT05UJ-390 | C Cap | 39 P " " |
| C22 | QET41ER-475 | E Cap | 4.7 25 V |
| C23 | QFN41HK-473 | MY Cap | 0.047 50 V |
| C24 | QET41ER-106 | E Cap | 10 25 V |
| C25 | QCF11E2-223 | C Cap | 0.022 50 V |
| C26 | QET41AR-476 | E Cap | 47 10 V |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-------------|-------------|
| C27 | QET41AR-476 | E Cap | 47 10 V |
| C28 | QCS11HJ-270 | C Cap | 27 P 50 V |
| C29 | QEN41HA-105 | NP Cap | 1 " |
| C30 | QCT05UJ-101 | C Cap | 100 P " |
| C31 | QFF41HJ-151 | FM Cap | 150 P " |
| C32 | QET41HR-105 | E Cap | 1 " |
| C33 | QET41ER-106 | " | 10 25 V |
| C34 | QCT05UJ-390 | C Cap | 39 P 50 V |
| C35 | " -150 | " | 15 P " |
| C36 | QEN41HA-105 | NP Cap | 1 " |
| C37 | " -105 | " | 1 " |
| C38 | QCF11EZ-223 | C Cap | 0.022 " |
| C39 | QFN41HK-472 | MY Cap | 0.0047 " |
| C40 | QFN41HK-102 | MY Cap | 0.001 " |
| C41 | " -103 | " | 0.01 " |
| C42 | " -104 | " | 0.1 " |
| C43 | " -683 | " | 0.068 " |
| C44 | " -683 | " | 0.068 " |
| C45 | " -683 | " | 0.068 " |
| C46 | " | " | " |
| C47 | QCT05UJ-330 | C Cap | 33 P 50 V |
| C48 | QFN41HK-103 | MY Cap | 0.01 " |
| C49 | " -103 | " | 0.01 " |
| C50 | QET41AR-476 | E Cap | 47 10 V |
| C51 | " -476 | " | 47 " |
| C52 | " -476 | " | 47 " |
| C53 | QFN41HK-103 | MY Cap | 0.01 50 V |
| C54 | QET41AR-476 | E Cap | 47 10 V |
| C55 | " -476 | " | 47 " |
| C56 | QFN41HK-103 | MY Cap | 0.01 50 V |
| C57 | " -103 | " | 0.01 " |
| C58 | " -103 | " | 0.01 " |
| C59 | QCT05UJ-101 | C Cap | 100 P " |
| C60 | QFN41HK-103 | MY Cap | 0.01 " |
| C61 | " -103 | " | 0.01 " |
| C62 | " -103 | " | 0.01 " |
| C63 | " -102 | " | 0.001 " |
| C64 | " -102 | " | 0.001 " |
| C65 | " -103 | " | 0.01 " |
| C66 | QCT05UJ-150 | C Cap | 15 P " |
| C67 | QAT3001-002 | Trimmer Cap | 20 P " |
| C68 | QCS11HJ-181 | C Cap | 180 P 50 V |
| C69 | QCT05UJ-151 | " | 150 P " |
| C70 | " | " | " |
| C71 | QAT3001-002 | Trimmer Cap | 20 P " |
| C72 | " | " | " |
| C73 | QCT05UJ-101 | C Cap | 100 P 50 V |
| C74 | " -181 | " | 180 P " |
| C75 | " -470 | " | 47 P " |
| C76 | " | " | " |
| C77 | QCF11EZ-473 | C Cap | 0.047 50 V |
| C78 | QET41AR-476 | E Cap | 47 10 V |
| C79 | QFN41HK-102 | MY Cap | 0.001 50 V |
| C80 | QCT05UJ-271 | C Cap | 270 P " |
| C81 | QFF41HJ-221 | FM Cap | 220 P " |
| C82 | " -221 | " | 220 P " |
| C83 | QCT05UJ-270 | C Cap | 27 P " |
| C84 | QFN41HK-473 | MY Cap | 0.047 " |
| C85 | " -103 | " | 0.01 " |
| C86 | " -103 | " | 0.01 " |
| C87 | " -333 | " | 0.033 " |
| C88 | " -333 | " | 0.033 " |
| C89 | QFF41HJ-181 | FM Cap | 180 P " |

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|--------------|-------------|
| C90 | QET41ER-475 | E Cap | 4.7 25 V |
| C91 | " -475 | " | 47 " |
| C92 | QFN41HK-102 | MY Cap | 0.001 50 V |
| C93 | " -333 | " | 0.033 " |
| C94 | " -102 | " | 0.001 " |
| C95 | QCT05UJ-331 | C Cap | 330 P " |
| C96 | QFN41HK-103 | MY Cap | 0.01 " |
| C97 | " -103 | " | 0.01 " |
| C98 | QCT05UJ-470 | C Cap | 47 P " |
| C99 | QET41ER-106 | E Cap | 10 25 V |
| C100 | QCT05UJ-221 | C Cap | 220 P 50 V |
| C101 | QCF11EZ-223 | " | 0.022 " |
| C102 | QET41AR-476 | E Cap | 47 10 V |
| C103 | " -476 | " | 47 " |
| C104 | QFN41HK-103 | MY Cap | 0.01 50 V |
| C105 | QCF11EZ-473 | C Cap | 0.047 " |
| C106 | " | " | " |
| C107 | QCT05UJ-101 | C Cap | 100 P 50 V |
| L 1 | PU48530-120K | Peaking Coil | 12 μ H |
| L 2 | " -560K | " | 56 μ H |
| L 3 | " -220K | " | 22 μ H |
| L 4 | " -120K | " | 12 μ H |
| L 5 | " -330K | " | 33 μ H |
| L 6 | " -120K | " | 12 μ H |
| L 7 | " | " | " |
| L 8 | SCV0100-001 | Choke Coil | 10 μ H |
| L 9 | A04096-10 | Peaking Coil | 1 mH |
| L 10 | " -1000 | " | " |
| X-TAL 1 | A75890 | Crystal | " |
| X-TAL 2 | SCV0179-001 | " | " |
| SW 1 | SCV0024-001 | Slide Switch | " |
| CN | SCV0070-00P | Connector | 22 pins |

8.1.6 PS Board Ass'y SCK2023-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|---------------|---------------|---------------|
| △ IC 1 | M5230L | I.C. | MITSUBISHI |
| △ IC 2 | HA17805P | " | HITACHI |
| △ IC 3 | TA7089P | " | TOSHIBA |
| △ IC 4 | HA17812P | " | HITACHI |
| △ IC 5 | TA78L005AP | " | TOSHIBA |
| △ Q 1 | 2S8856C | Transistor | MATSUSHITA |
| △ Q 2 | 2SC1061B | " | HITACHI |
| △ Q 3 | " | " | " |
| Q 4 | 2SA564R | " | MATSUSHITA |
| Q 5 | 2SC828R | " | " |
| D 1 | SI801-02 | Silicon Diode | FUJI ELECTRIC |
| D 2 | " | " | " |
| △ D 3 | S4VB20 | Silicon Diode | SHINDENGEN |
| △ D 4 | " | " | " |
| △ D 5 | ERC81-004 | " | " |
| △ D 6 | " | " | " |
| △ D 7 | " | " | " |
| △ D 8 | " | " | " |
| R 1 | GC31868-331 | MFR | 330 1/4 W F |
| R 2 | " -331 | " | 330 " " |
| R 3 | QRX029J-R68 | " | 0.68 2 W J |
| R 4 | GC31868-101 | " | 100 1/4 W F |
| R 5 | QRX029J-R68 | " | 0.68 2 W J |
| R 6 | GC31868-101 | " | 100 1/4 W F |
| R 7 | " -822 | " | 8.2 K " " |
| R 8 | SCV0047-102 | VR | 1 K |
| R 9 | GC31868-182 | MFR | 1.8 K 1/4 W F |
| R 10 | " -153 | " | 15 K " " |
| R 11 | " -153 | " | 15 K " " |
| R 12 | " -151 | " | 150 " " |
| R 13 | QRX029J-R47 | " | 0.47 2 W J |
| R 14 | GC31868-123 | " | 12 K 1/4 W F |
| R 15 | SCV0047-202 | VR | 2 K |
| R 16 | GC31868-332 | MFR | 3.3 K 1/4 W F |
| R 17 | GC31868-470 | " | 47 1/4 W F |
| △ C 1 | QEV71VR-478 | E Cap | 4700 35 V |
| △ C 2 | QEV71ER-478 | " | 4700 25 V |
| △ C 3 | " -478 | " | 4700 " " |
| C 4 | QET61HM-105Z | " | 1 50 V |
| C 5 | QFN41HK-334 | MY Cap | 0.33 " |
| C 6 | QET61HK-105Z | E Cap | 1 " |
| C 7 | QFN41HK-334 | MY Cap | 0.33 " |
| C 8 | QEV71ER-478 | E Cap | 4700 25 V |
| C 9 | QET61HM-105Z | " | 1 50 V |
| C 10 | QET61CM-107Z | " | 100 16 V |
| C 11 | " -107Z | " | 100 " " |
| C 12 | QFM31HK-104ZD | MY Cap | 0.1 50 V |
| C 13 | QET41VR-107 | E Cap | 100 35 V |
| C 14 | QFM31HK-103ZD | MY Cap | 0.01 50 V |
| C 15 | QET61EM-476Z | E Cap | 47 25 V |
| C 16 | QFM31HK-104ZD | MY Cap | 0.1 50 V |
| C 17 | " -104ZD | " | 0.1 " |
| C 18 | " -104ZD | " | 0.1 " |
| C 19 | " -104ZD | " | 0.1 " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|--------------------|-------------|
| F 1 | " | " | " |
| △ F 2 | QMF51U1-1R6 | Fuse (NTSC) | 1.6 A 125 V |
| △ F 3 | QMF51A2-1R6 | " (PAL) | 1.6 A 250 V |
| F 4 | " | " | " |
| △ F 4 | QMF51U1-1R6 | Fuse (NTSC) | 1.6 A 125 V |
| △ F 4 | QMF51A2-1R6 | " (PAL) | 1.6 A 250 V |
| TP 1 | SCV0025-102 | Test Point | " |
| TP 2 | " -102 | " | " |
| TP 3 | " -102 | " | " |
| TP 4 | " -102 | " | " |
| △ CN 13 | SS31054-007 | Card Fit S (7P) | " |
| △ CN 14 | " -004 | " (4P) | " |
| △ CN 15 | " -005 | " (5P) | " |
| △ CN 16 | " -006 | " (6P) | " |
| △ CN 17 | SN3490-004 | Pola Male Pin (4P) | " |
| △ CN 18 | SN3490-003 | " (3P) | " |

8.1.7 TL Board Ass'y SC83035-001

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|---------------|--------------|
| IC 1 | TD62502P | I.C. | TOSHIBA |
| D 1 | 10D1 | Silicon Diode | NIHON INTER |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | " | " | " |
| D 6 | " | " | " |
| D 7 | " | " | " |
| D 8 | " | " | " |
| D 9 | " | " | " |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| R 1 | QRD167J-103 | CR | 10 K 1/6 W J |
| R 2 | " -103 | " | 10 K " " |
| Re 1 | SJV0033 | Relay | " |
| Re 2 | " | " | " |
| Re 3 | " | " | " |
| Re 4 | " | " | " |
| Re 5 | " | " | " |
| Re 6 | " | " | " |
| Re 7 | " | " | " |
| Re 8 | " | " | " |
| Re 9 | " | " | " |
| CN 9 | SS31054-009 | Card Fit S | " |
| CN10 | " -006 | " | " |
| CN11 | " -010 | Connector | " |

8.1.8 IT Board Ass'y SCK2022-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|-------------|-------------|
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| Q 2 | " | " | " |
| Q 3 | " | " | " |
| Q 4 | " | " | " |
| Q 5 | " | " | " |
| Q 6 | " | " | " |
| D 1 | RD24EB | Zener Diode | NEC (24 V) |
| D 2 | " | " | " (") |
| R 1 | QRD167J-102 | CR | 1 K 1/6 W J |
| R 2 | " -102 | " | 1 K " " |
| R 3 | " -100 | " | 10 " " |
| R 4 | GC31868-331 | MFR | 330 " " |
| R 5 | QRD167J-123 | CR | 12 K " " |
| R 6 | " -472 | " | 4.7 K " " |
| R 7 | " -331 | " | 330 " " |
| R 8 | " -682 | " | 6.8 K " " |
| R 9 | " -222 | " | 2.2 K " " |
| R10 | " -101 | " | 100 " " |
| R11 | SCV0290-001 | VR | " |
| R12 | QRD167J-331 | CR | 330 1/6 W J |
| R13 | " -331 | " | 330 " " |
| R14 | " -682 | " | 6.8 K " " |
| R15 | " -101 | " | 100 " " |
| R16 | " -222 | " | 2.2 K " " |
| R17 | SCV0290-001 | VR | " |
| R18 | QRD167J-331 | CR | 330 1/6 W J |
| R19 | " -331 | " | 330 " " |
| R20 | " -682 | " | 6.8 K " " |
| R21 | " -101 | " | 100 " " |
| R22 | " -222 | " | 2.2 K " " |
| R23 | SCV0290-001 | VR | " |
| R24 | QRD167J-331 | CR | 330 1/6 W J |
| R25 | QRD121J-151 | CR | 150 1/4 W F |
| R26 | " -151 | " | 150 " " |
| R27 | " -151 | " | 150 " " |
| C 1 | QET41ER-107 | E Cap | 100 25 V |
| C 2 | QET61EM-107Z | " | 100 " " |
| C 3 | " -107Z | " | 100 " " |
| C 4 | " -107Z | " | 100 " " |
| C 5 | QET61CM-107Z | " | 47 16 V |
| C 6 | QET61AM-476Z | " | 47 10 V |
| C 7 | " -476Z | " | 47 " " |
| C 8 | QET61CM-107Z | " | 47 16 V |
| C 9 | " -107Z | " | 47 " " |
| C10 | QET61AM-476Z | " | 47 10 V |
| C11 | " -476Z | " | 47 " " |
| C12 | QET41CR-477 | " | 470 16 V |
| C13 | QET61AM-476Z | " | 47 10 V |
| L 1 | SCV0407-001 | Choke Coil | " |
| L 2 | " -001 | " | " |
| 19 | SS30644-003 | Post Header | " |
| 20 | " -003 | " | " |
| 21 | " -003 | " | " |
| 22 | " -003 | " | " |
| 23 | SS31054-005 | Card Fit S | " |

8.1.9 MB Board Ass'y SCK1045-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-----------|---------------|-------------|
| IC 1 | TC4010BP | I.C. | TOSHIBA |
| IC 2 | TC4042BP | " | " |
| IC 3 | TC4051BP | " | " |
| IC 4 | " | " | " |
| IC 5 | TC4009UBP | " | " |
| IC 6 | TC4011BP | " | " |
| IC 7 | TC4053BP | " | " |
| IC 8 | TC4011BP | " | " |
| IC 9 | TC5018P | " | " |
| IC10 | TC4009UBP | " | " |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| Q 2 | 2SA564R | " | " |
| Q 3 | 2SC828R | " | " |
| Q 4 | 2SA564R | " | " |
| D 1 | MA165 | Silicon Diode | MATSUSHITA |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | " | " | " |
| D 6 | " | " | " |
| D 7 | " | " | " |
| D 8 | " | " | " |
| D 9 | " | " | " |
| D10 | " | " | " |
| D11 | " | " | " |
| D12 | " | " | " |
| D13 | " | " | " |
| D14 | " | " | " |
| D15 | " | " | " |
| D16 | " | " | " |
| D17 | " | " | " |
| D18 | " | " | " |
| D19 | " | " | " |
| D20 | " | " | " |
| D21 | " | " | " |
| D22 | " | " | " |
| D23 | " | " | " |
| D24 | " | " | " |
| D25 | " | " | " |
| D26 | " | " | " |
| D27 | " | " | " |
| D28 | " | " | " |
| D29 | " | " | " |
| D30 | " | " | " |
| D31 | " | " | " |
| D32 | " | " | " |
| D33 | " | " | " |
| D34 | " | " | " |
| D35 | " | " | " |
| D36 | " | " | " |
| D37 | " | " | " |
| D38 | " | " | " |
| D39 | " | " | " |
| D40 | " | " | " |
| D41 | " | " | " |
| D42 | " | " | " |
| D43 | " | " | " |
| D44 | " | " | " |
| D45 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|---------------|--------------|
| D46 | MA165 | Silicon Diode | MATSUSHITA |
| D47 | " | " | " |
| D48 | " | " | " |
| D49 | " | " | " |
| D50 | " | " | " |
| D51 | " | " | " |
| D52 | " | " | " |
| D53 | " | " | " |
| D54 | " | " | " |
| D55 | " | " | " |
| D56 | " | " | " |
| D57 | " | " | " |
| D58 | " | " | " |
| D59 | " | " | " |
| D60 | " | " | " |
| D61 | " | " | " |
| D62 | " | " | " |
| D63 | " | " | " |
| D64 | " | " | " |
| D65 | " | " | " |
| D66 | " | " | " |
| D67 | MA165 | Silicon Diode | MATSUSHITA |
| D68 | " | " | " |
| D69 | " | " | " |
| D70 | " | " | " |
| D71 | " | " | " |
| D72 | " | " | " |
| D73 | " | " | " |
| D74 | " | " | " |
| D75 | " | " | " |
| D76 | " | " | " |
| D77 | " | " | " |
| D78 | " | " | " |
| R 1 | QRD167J-473 | CR | 47 K 1/6 W J |
| R 2 | " -473 | " | 47 K " " |
| R 3 | " -473 | " | 47 K " " |
| R 4 | " -473 | " | 47 K " " |
| R 5 | " -473 | " | 47 K " " |
| R 6 | " -473 | " | 47 K " " |
| R 7 | " -473 | " | 47 K " " |
| R 8 | " -473 | " | 47 K " " |
| R 9 | " -473 | " | 47 K " " |
| R10 | " -473 | " | 47 K " " |
| R11 | " -473 | " | 47 K " " |
| R12 | " -473 | " | 47 K " " |
| R13 | " -102 | " | 1 K " " |
| R14 | " -473 | " | 47 K " " |
| R15 | " -272 | " | 2.7 K " " |
| R16 | " -103 | " | 10 K " " |
| R17 | " -473 | " | 47 K " " |
| R18 | " -393 | " | 39 K " " |
| R19 | " -332 | " | 3.3 K " " |
| R20 | " -393 | " | 39 K " " |
| R21 | " -332 | " | 3.3 K " " |
| R22 | " -393 | " | 39 K " " |
| R23 | " -332 | " | 3.3 K " " |
| R24 | " -393 | " | 39 K " " |
| R25 | " -332 | " | 3.3 K " " |
| R26 | " -393 | " | 39 K " " |
| R27 | " -332 | " | 3.3 K " " |
| R28 | " -332 | " | 3.3 K " " |
| R29 | " -102 | " | 1 K " " |

8.2 CONTROL UNIT

8.2.1 LB Board Ass'y SCK1039-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R30 | QRD167J-332 | CR | 3.3 K 1/6 W J |
| R31 | " -102 | " | 1 K " " |
| R32 | " -332 | " | 3.3 K " " |
| R33 | " -102 | " | 1 K " " |
| R34 | " -332 | " | 3.3 K " " |
| R35 | " -102 | " | 1 K " " |
| R36 | " -332 | " | 3.3 K " " |
| R37 | " -102 | " | 1 K " " |
| R38 | " -101 | " | 100 " " |
| R39 | " -103 | " | 10 K " " |
| R40 | " -101 | " | 100 " " |
| R41 | " - | " | " |
| R42 | " -473 | " | 47 K 1/6 W J |
| R43 | " -272 | " | 2.7 K " " |
| R44 | " -473 | " | 47 K " " |
| R45 | " -272 | " | 2.7 K " " |
| R46 | " -473 | " | 47 K " " |
| R47 | " -473 | " | 47 K " " |
| R48 | " -473 | " | 47 K " " |
| R49 | " -473 | " | 47 K " " |
| R50 | " -473 | " | 47 K " " |
| R51 | " -473 | " | 47 K " " |
| R52 | " -103 | " | 10 K " " |
| R53 | " -272 | " | 2.7 K " " |
| R54 | " -473 | " | 47 K " " |
| R55 | " -103 | " | 10 K " " |
| R56 | " -272 | " | 2.7 K " " |
| R57 | " -473 | " | 47 K " " |
| R58 | " -103 | " | 10 K " " |
| R59 | " -272 | " | 2.7 K " " |
| R60 | " -473 | " | 47 K " " |
| R61 | " -103 | " | 10 K " " |
| R62 | " -272 | " | 2.7 K " " |
| R63 | " -473 | " | 47 K " " |
| R64 | " -103 | " | 10 K " " |
| R65 | " -272 | " | 2.7 K " " |
| R66 | " -102 | " | 1 K " " |
| R67 | " -102 | " | 1 K " " |
| R68 | " -102 | " | 1 K " " |
| R69 | " -102 | " | 1 K " " |
| R70 | " -102 | " | 1 K " " |
| R71 | SC31868-750 | MFR | 75 1/4 W F |
| R72 | " -750 | " | 75 " " |
| R73 | " -750 | " | 75 " " |
| R74 | QRD167J-104 | CR | 100 K 1/6 W J |
| R75 | " -103 | " | 10 K " " |
| R76 | " -473 | " | 47 K " " |
| C 1 | QCS31HJ-101 | C Cap | 100 P 50 V |
| C 2 | " -101 | " | 100 P " |
| C 3 | " -101 | " | 100 P " |
| C 4 | " -221 | " | 220 P " |
| C 5 | " -101 | " | 100 P " |
| C 6 | " -101 | " | 100 P " |
| C 7 | " -101 | " | 100 P " |
| C 8 | " -101 | " | 100 P " |
| C 9 | QET61EM-107 | E Cap | 100 25 V |
| C10 | " -107 | " | 100 " " |
| C11 | " -107 | " | 100 " " |
| C12 | " -107 | " | 100 " " |
| C13 | " -107 | " | 100 " " |
| C14 | " -107 | " | 100 " " |
| C15 | " -107 | " | 100 " " |

| Symbol No. | Part No. | Part Name | Description |
|-------------|-------------|-------------|--------------|
| C16 | QET61EM-107 | E Cap | 100 25 V |
| C17 | " -107 | " | 100 " " |
| C18 | " -107 | " | 100 " " |
| C19 | " -107 | " | 100 " " |
| C20 | " -107 | " | 100 " " |
| C21 | " -107 | " | 100 " " |
| C22 | " -107 | " | 100 " " |
| C23 | " - | " | " |
| C24 | QCS31HJ-221 | C Cap | 100 P 50 V |
| | | | |
| SCV0025-102 | | Test Point | (TP 1, TP 2) |
| | | | |
| CN 1 | SCV0305-00S | Connector | 53 P |
| CN 2 | " -00S | " | 53 P |
| CN 3 | " -00S | " | 53 P |
| CN 4 | " -00S | " | 53 P |
| CN 5 | " -00S | " | 53 P |
| CN 6 | SS31002-050 | Plug Header | 50 P |
| CN 7 | " -026 | " | " |
| CN 8 | SS31054-009 | Card Fit S | " |
| CN 9 | " - | " | " |
| CN10 | " - | " | " |
| CN11 | " - | " | " |
| CN12 | SS31054-007 | Card Fit S | " |
| CN13 | " - | " | " |
| CN14 | " - | " | " |
| CN15 | " - | " | " |
| CN16 | " - | " | " |
| CN17 | " - | " | " |
| CN18 | " - | " | " |
| CN19 | " - | " | " |
| CN20 | " - | " | " |
| CN21 | " - | " | " |
| CN22 | " - | " | " |
| CN23 | " - | " | " |
| CN24 | SS31054-004 | Card Fit | " |
| CN25 | SS30644-003 | Post Header | " |
| CN26 | " -002 | " | " |
| CN27 | " -002 | " | " |
| CN28 | SS30644-003 | Post Header | " |
| CN29 | " -003 | " | " |
| CN30 | " -010 | " | " |
| CN31 | " -006 | " | " |
| CN32 | " -002 | " | " |
| CN33 | " -008 | " | " |
| CN34 | " -008 | " | " |
| CN35 | " -002 | " | " |
| CN36 | " -002 | " | " |
| CN37 | " -004 | " | " |
| CN38 | " -002 | " | " |
| CN39 | " -010 | " | " |
| CN40 | " -006 | " | " |
| CN41 | " -006 | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-----------|---------------|-------------|
| IC 1 | TC4042BP | I.C. | TOSHIBA |
| IC 2 | " | " | " |
| IC 3 | " | " | " |
| IC 4 | " | " | " |
| IC 5 | " | " | " |
| IC 6 | " | " | " |
| IC 7 | TC4051BP | " | " |
| IC 8 | " | " | " |
| IC 9 | " | " | " |
| IC10 | " | " | " |
| IC11 | " | " | " |
| IC12 | TC5018P | " | " |
| IC13 | TC4009UBP | " | " |
| IC14 | TC4053BP | " | " |
| IC15 | " | " | " |
| IC16 | TC4009UBP | " | " |
| IC17 | TC4011BP | " | " |
| IC18 | " | " | " |
| IC19 | TC4051BP | " | " |
| IC20 | " | " | " |
| IC21 | " | " | " |
| IC22 | " | " | " |
| IC23 | TD62502P | " | " |
| IC24 | TC4051BP | " | " |
| IC25 | " | " | " |
| IC26 | TC4053BP | " | " |
| IC27 | " | " | " |
| IC28 | TC4011BP | " | " |
| IC29 | " | " | " |
| IC30 | CA3240E | " | RCA |
| IC31 | " | " | " |
| IC32 | " | " | " |
| IC33 | NJM4560D | " | JRC |
| IC34 | " | " | " |
| IC35 | " | " | " |
| IC36 | " | " | " |
| IC37 | " | " | " |
| IC38 | TC4053BP | " | TOSHIBA |
| IC39 | TC4009UBP | " | " |
| | | | |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| Q 2 | 2SA564R | " | " |
| Q 3 | 2SC828R | " | " |
| Q 4 | 2SA564R | " | " |
| Q 5 | 2SC828R | " | " |
| Q 6 | 2SA564R | " | " |
| Q 7 | 2SC828R | " | " |
| Q 8 | 2SA564R | " | " |
| Q 9 | " | " | " |
| Q10 | 2SC828R | " | " |
| | | | |
| D 1 | MA165 | Silicon Diode | MATSUSHITA |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | " | " | " |
| D 6 | " | " | " |
| D 7 | " | " | " |
| D 8 | " | " | " |
| D 9 | " | " | " |
| D10 | " | " | " |
| D11 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|----------|---------------|--------------|
| D12 | MA165 | Silicon Diode | MATSUSHITA S |
| D13 | " | " | " |
| D14 | " | " | " |
| D15 | " | " | " |
| D16 | " | " | " |
| D17 | " | " | " |
| D18 | " | " | " |
| D19 | " | " | " |
| D20 | " | " | " |
| D21 | " | " | " |
| D22 | " | " | " |
| D23 | " | " | " |
| D24 | " | " | " |
| D25 | " | " | " |
| D26 | " | " | " |
| D27 | " | " | " |
| D28 | " | " | " |
| D29 | " | " | " |
| D30 | " | " | " |
| D31 | " | " | " |
| D32 | " | " | " |
| D33 | " | " | " |
| D34 | " | " | " |
| D35 | " | " | " |
| D36 | " | " | " |
| D37 | " | " | " |
| D38 | " | " | " |
| D39 | " | " | " |
| D40 | " | " | " |
| D41 | " | " | " |
| D42 | " | " | " |
| D43 | " | " | " |
| D44 | " | " | " |
| D45 | " | " | " |
| D46 | " | " | " |
| D47 | " | " | " |
| D48 | " | " | " |
| D49 | " | " | " |
| D50 | " | " | " |
| D51 | " | " | " |
| D52 | " | " | " |
| D53 | " | " | " |
| D54 | " | " | " |
| D55 | " | " | " |
| D56 | " | " | " |
| D57 | " | " | " |
| D58 | " | " | " |
| D59 | MA165 | Silicon Diode | MATSUSHITA S |
| D60 | " | " | " |
| D61 | " | " | " |
| D62 | " | " | " |
| D63 | " | " | " |
| D64 | " | " | " |
| D65 | " | " | " |
| D66 | " | " | " |
| D67 | " | " | " |
| D68 | " | " | " |
| | | | |
| R 1 | 1S1555 | Diode | " |
| R 2 | " | " | " |
| R 3 | " | " | " |
| R 4 | " | " | " |
| R 5 | " | " | " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R 6 | 1S1555 | Diode | |
| R 7 | " | " | |
| R 8 | " | " | |
| R 9 | " | " | |
| R10 | " | " | |
| R11 | " | " | |
| R12 | " | " | |
| R13 | " | " | |
| R14 | " | " | |
| R15 | " | " | |
| R16 | " | " | |
| R17 | QRD167J-104 | CR | 100 K 1/6 W J |
| R18 | " -102 | " | 1 K " " |
| R19 | " -103 | " | 10 K " " |
| R20 | " -474 | " | 470 K " " |
| R21 | " -474 | " | 470 K " " |
| R22 | " -474 | " | 470 K " " |
| R23 | " -474 | " | 470 K " " |
| R24 | " -474 | " | 470 K " " |
| R25 | " -474 | " | 470 K " " |
| R26 | " -474 | " | 470 K " " |
| R27 | " -474 | " | 470 K " " |
| R28 | " -473 | " | 47 K " " |
| R29 | " -473 | " | 47 K " " |
| R30 | " -473 | " | 47 K " " |
| R31 | " -473 | " | 47 K " " |
| R32 | " -474 | " | 470 K " " |
| R33 | " -474 | " | 470 K " " |
| R34 | " -474 | " | 470 K " " |
| R35 | " -474 | " | 470 K " " |
| R36 | " -474 | " | 470 K " " |
| R37 | " -474 | " | 470 K " " |
| R38 | " -474 | " | 470 K " " |
| R39 | " -474 | " | 470 K " " |
| R40 | " -474 | " | 470 K " " |
| R41 | " -474 | " | 470 K " " |
| R42 | " -474 | " | 470 K " " |
| R43 | " -474 | " | 470 K " " |
| R44 | " -474 | " | 470 K " " |
| R45 | " -474 | " | 470 K " " |
| R46 | 1S1555 | Diode | |
| R47 | " | " | |
| R48 | " | " | |
| R49 | " | " | |
| R50 | " | " | |
| R51 | " | " | |
| R52 | QRD167J-473 | CR | 47 K 1/6 W J |
| R53 | " -103 | " | 10 K " " |
| R54 | " -473 | " | 47 K " " |
| R55 | " -103 | " | 10 K " " |
| R56 | " -473 | " | 47 K " " |
| R57 | " -103 | " | 10 K " " |
| R58 | " -473 | " | 47 K " " |
| R59 | " -103 | " | 10 K " " |
| R60 | " -473 | " | 47 K " " |
| R61 | " -103 | " | 10 K " " |
| R62 | " | " | |
| R63 | QRD167J-472 | CR | 47 K 1/6 W J |
| R64 | " | " | |
| R65 | QRD167J-472 | CR | 47 K 1/6 W J |
| R66 | " | " | |
| R67 | QRD167J-472 | CR | 47 K 1/6 W J |
| R68 | " -473 | " | 47 K " " |
| R69 | " -103 | " | 10 K " " |
| R70 | " | " | |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|--------------|
| R71 | QRD167J-472 | CR | 47 K 1/6 W J |
| R72 | " | " | |
| R73 | QRD167J-472 | CR | 47 K 1/6 W J |
| R74 | " | " | |
| R75 | QRD167J-472 | CR | 47 K 1/6 W J |
| R76 | GC31868-331 | MFR | 330 1/4 W F |
| R77 | " -331 | " | 330 " " |
| R78 | " -331 | " | 330 " " |
| R79 | " -331 | " | 330 " " |
| R80 | QRD167J-473 | CR | 47 K 1/6 W J |
| R81 | " -473 | " | 47 K " " |
| R82 | " -103 | " | 10 K " " |
| R83 | " -103 | " | 10 K " " |
| R84 | " -103 | " | 10 K " " |
| R85 | " -473 | " | 47 K " " |
| R86 | " -473 | " | 47 K " " |
| R87 | " -473 | " | 47 K " " |
| R88 | " -473 | " | 47 K " " |
| R89 | " -473 | " | 47 K " " |
| R90 | " -473 | " | 47 K " " |
| R91 | " | " | |
| R92 | " | " | |
| R93 | " | " | |
| R94 | " | " | |
| R95 | " | " | |
| R96 | QRD167J-103 | CR | 10 K 1/6 W J |
| R97 | " -272 | " | 27 K " " |
| R98 | " -272 | " | 27 K " " |
| R99 | " -272 | " | 27 K " " |
| R100 | " -272 | " | 27 K " " |
| R101 | " -272 | " | 27 K " " |
| R102 | " -272 | " | 27 K " " |
| R103 | " -102 | " | 1 K " " |
| R104 | " -102 | " | 1 K " " |
| R105 | " -102 | " | 1 K " " |
| R106 | " -102 | " | 1 K " " |
| R107 | " -102 | " | 1 K " " |
| R108 | " -102 | " | 1 K " " |
| R109 | " -102 | " | 1 K " " |
| R110 | " -102 | " | 1 K " " |
| R111 | " -104 | " | 100 K " " |
| R112 | " -104 | " | 100 K " " |
| R113 | " -104 | " | 100 K " " |
| R114 | " -104 | " | 100 K " " |
| R115 | " -104 | " | 100 K " " |
| R116 | " -104 | " | 100 K " " |
| R117 | " -104 | " | 100 K " " |
| R118 | " -104 | " | 100 K " " |
| R119 | " -473 | " | 47 K " " |
| R120 | " -473 | " | 47 K " " |
| R121 | " -473 | " | 47 K " " |
| R122 | " -103 | " | 10 K " " |
| R123 | " -473 | " | 47 K " " |
| R124 | " -103 | " | 10 K " " |
| R125 | " -473 | " | 47 K " " |
| R126 | " -103 | " | 10 K " " |
| R127 | " -473 | " | 47 K " " |
| R128 | " -103 | " | 10 K " " |
| R129 | " -473 | " | 47 K " " |
| R130 | " -101 | " | 100 " " |
| R131 | " -101 | " | 100 " " |
| R132 | " -101 | " | 100 " " |
| R133 | " -101 | " | 100 " " |
| R134 | " -473 | " | 47 K " " |
| R135 | " -473 | " | 47 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|--------------|
| R136 | QRD167J-473 | CR | 47 K 1/6 W J |
| R137 | " -473 | " | 47 K " " |
| R138 | " -473 | " | 47 K " " |
| R139 | " -473 | " | 47 K " " |
| R140 | " -473 | " | 47 K " " |
| R141 | " -473 | " | 47 K " " |
| R142 | " -473 | " | 47 K " " |
| R143 | " -473 | " | 47 K " " |
| R144 | " -473 | " | 47 K " " |
| R145 | " -473 | " | 47 K " " |
| R146 | " -473 | " | 47 K " " |
| R147 | " -473 | " | 47 K " " |
| R148 | " -473 | " | 47 K " " |
| R149 | " -393 | " | 39 K " " |
| R150 | " -332 | " | 33 K " " |
| R151 | " -332 | " | 39 K " " |
| R152 | " -393 | " | 33 K " " |
| R153 | " -332 | " | 33 K " " |
| R154 | " -332 | " | 33 K " " |
| R155 | " -222 | " | 2.2 K " " |
| R156 | " -102 | " | 1 K " " |
| R157 | " -153 | " | 15 K " " |
| R158 | " -222 | " | 2.2 K " " |
| R159 | " -472 | " | 47 K " " |
| R160 | SCV0047-203 | VR | 20 K 1/6 W J |
| R161 | QRD167J-104 | CR | 10 K 1/6 W J |
| R162 | SCV0047-203 | VR | 20 K 1/6 W J |
| R163 | QRD167J-223 | CR | 22 K 1/6 W J |
| R164 | " -681 | " | 680 " " |
| R165 | " -822 | " | 8.2 K " " |
| R166 | " -681 | " | 680 " " |
| R167 | " -332 | " | 33 K " " |
| R168 | SCV0047-502 | VR | 5 K 1/6 W J |
| R169 | QRD167J-681 | CR | 680 " " |
| R170 | " -822 | " | 8.2 K " " |
| R171 | " -681 | " | 680 " " |
| R172 | " -822 | " | 8.2 K " " |
| R173 | " -822 | " | 8.2 K " " |
| R174 | " -681 | " | 680 " " |
| R175 | " -103 | " | 10 K " " |
| R176 | " -103 | " | 10 K " " |
| R177 | " -332 | " | 33 K " " |
| R178 | SCV0047-502 | VR | 5 K 1/6 W J |
| R179 | QRD167J-332 | CR | 33 K 1/6 W J |
| R180 | SCV0047-103 | VR | 10 K 1/6 W J |
| R181 | " -502 | " | 5 K 1/6 W J |
| R182 | QRD167J-561 | CR | 560 1/6 W J |
| R183 | " -103 | " | 10 K " " |
| R184 | SCV0047-203 | VR | 20 K 1/6 W J |
| R185 | " -502 | " | 5 K 1/6 W J |
| R186 | QRD167J-332 | CR | 33 K 1/6 W J |
| R187 | " -103 | " | 10 K " " |
| R188 | SCV0047-502 | VR | 5 K 1/6 W J |
| R189 | " -502 | " | 5 K 1/6 W J |
| R190 | QRD167J-332 | CR | 33 K 1/6 W J |
| R191 | " -103 | " | 10 K " " |
| R192 | SCV0047-502 | VR | 5 K 1/6 W J |
| R193 | QRD167J-103 | CR | 10 K 1/6 W J |
| R194 | SCV0047-502 | VR | 5 K 1/6 W J |
| R195 | QRD167J-103 | CR | 10 K 1/6 W J |
| R196 | SCV0047-502 | VR | 5 K 1/6 W J |
| R197 | QRD167J-103 | CR | 10 K 1/6 W J |
| R198 | SCV0047-502 | VR | 5 K 1/6 W J |
| R199 | QRD167J-103 | CR | 10 K 1/6 W J |
| R200 | SCV0047-502 | VR | 5 K 1/6 W J |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-------------|---------------|
| R201 | QRD167J-682 | CR | 6.8 K 1/6 W J |
| R202 | SCV0047-502 | VR | 5 K 1/6 W J |
| R203 | QRD167J-103 | CR | 10 K 1/6 W J |
| R204 | SCV0047-502 | VR | 5 K 1/6 W J |
| R205 | " -502 | " | 5 K 1/6 W J |
| R206 | QRD167J-332 | CR | 33 K 1/6 W J |
| R207 | " -473 | " | 47 K " " |
| R208 | " -102 | " | 1 K " " |
| R209 | " -473 | " | 47 K " " |
| R305 | " -222 | " | 2.2 K 1/6 W J |
| C 1 | QET41ER-106 | MY Cap | 10 50 V |
| C 2 | QET61EM-476 | E Cap | 47 25 V |
| C 3 | QFM31HK-103 | MY Cap | 0.01 50 V |
| C 4 | QET61EM-476 | E Cap | 47 25 V |
| C 5 | QFM31HK-103 | MY Cap | 0.01 50 V |
| C 6 | " -103 | " | 0.01 " " |
| C 7 | QET61EM-476 | E Cap | 47 25 V |
| C 8 | " -476 | " | 47 " " |
| C 9 | QCS31HJ-221 | C Cap | 2200 P 50 V |
| C10 | " -221 | " | 2200 P " " |
| C11 | " -221 | " | 2200 P " " |
| C12 | " -221 | " | 2200 P " " |
| C13 | " -221 | " | 2200 P " " |
| C14 | " -221 | " | 2200 P " " |
| C15 | QFM31HK-103 | MY Cap | 0.01 " " |
| C16 | QET61EM-107 | E Cap | 100 25 V |
| C17 | " -476 | " | 47 " " |
| C18 | " -476 | " | 47 " " |
| C19 | " | " | " " " |
| C20 | " | " | " " " |
| C21 | " | " | " " " |
| C22 | " | " | " " " |
| C23 | " | " | " " " |
| C24 | " | " | " " " |
| C25 | QET61EM-107 | E Cap | 100 25 V |
| C26 | " -107 | " | 100 " " |
| C27 | " -107 | " | 100 " " |
| C28 | " -107 | " | 100 " " |
| C29 | QET61AM-227 | " | 220 10 V |
| C30 | QET61EM-107 | " | 100 25 V |
| C31 | " | " | " " " |
| C32 | " | " | " " " |
| C33 | " | " | " " " |
| C34 | QET61EM-107 | E Cap | 100 25 V |
| C35 | " -107 | " | 100 " " |
| CN 1 | SS31002-050 | Plug Header | 50 Pin |
| CN 2 | " -026 | " | 26 Pin |
| CN 3 | " | " | " " " |
| CN 4 | " | " | " " " |
| CN 5 | " | " | " " " |
| CN 6 | " | " | " " " |
| CN 7 | " | " | " " " |
| CN 8 | " | " | " " " |
| CN 9 | " | " | " " " |
| CN10 | " | " | " " " |
| CN11 | " | " | " " " |
| CN12 | " | " | " " " |
| CN13 | SS31054-008 | Card Fit S | 8 Pin |
| CN14 | " | " | " " " |
| CN15 | SS31054-005 | Card Fit S | 5 Pin |

8.2.2 SB-1 Board Ass'y SKK1033-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|----------------|-------------|
| CN16 | SS31054-024 | Card Fit S | 24 Pin |
| CN17 | " -020 | " | 20 Pin |
| CN18 | " -015 | " | 15 Pin |
| CN19 | " -034 | " | 34 Pin |
| CN20 | " -016 | " | 16 Pin |
| CN21 | SS30662-003 | L. Post Header | |
| CN22 | " -003 | " | |
| CN23 | " -003 | " | |
| CN24 | " -003 | " | |
| TP 1 | SCV0025-102 | Test Point | |
| TP 2 | " -102 | " | |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|---------------|-------------|
| IC 1 | TC4532BP | I.C. | TOSHIBA |
| IC 2 | " | " | " |
| IC 3 | " | " | " |
| IC 4 | " | " | " |
| IC 5 | " | " | " |
| IC 6 | " | " | " |
| IC 7 | TD62502P | " | " |
| IC 8 | " | " | " |
| IC 9 | TC4051BP | " | " |
| IC10 | TD62502P | " | " |
| IC11 | TC4051BP | " | " |
| IC12 | TD62502P | " | " |
| IC13 | TC4051BP | " | " |
| IC14 | TD62502P | " | " |
| IC15 | TC4051BP | " | " |
| IC16 | TD62502P | " | " |
| Q 1 | 2SA564R | Transistor | MATSUSHITA |
| Q 2 | 2SC828R | " | " |
| Q 3 | 2SA564R | " | " |
| Q 4 | 2SC828R | " | " |
| Q 5 | 2SA564R | " | " |
| Q 6 | 2SC828R | " | " |
| Q 7 | 2SA564R | " | " |
| Q 8 | 2SC828R | " | " |
| D 1 | MA165 | Silicon Diode | MATSUSHITA |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | " | " | " |
| D 6 | 1S1555 | " | " |
| D 7 | MA165 | " | " |
| D 8 | " | " | " |
| D 9 | " | " | " |
| D10 | " | " | " |
| D11 | " | " | " |
| D12 | " | " | " |
| D13 | " | " | " |
| D14 | " | " | " |
| D15 | " | " | " |
| D16 | " | " | " |
| D17 | " | " | " |
| D18 | " | " | " |
| D19 | " | " | " |
| D20 | " | " | " |
| D21 | " | " | " |
| D22 | " | " | " |
| D23 | " | " | " |
| D24 | " | " | " |
| D25 | " | " | " |
| D26 | 1S1555 | " | " |
| D27 | MA165 | " | " |
| D28 | " | " | " |
| R 1 | QRD167J-102 | CR | 1 K 1/6 W J |
| R 2 | " -473 | " | 47 K " " |
| R 3 | " -473 | " | 47 K " " |
| R 4 | " -473 | " | 47 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-----------|---------------|
| R 5 | QRD167J-473 | CR | 47 K 1/6 W J |
| R 6 | " -473 | " | 47 K " " |
| R 7 | " -473 | " | 47 K " " |
| R 8 | " -473 | " | 47 K " " |
| R 9 | " -473 | " | 47 K " " |
| R10 | " -102 | " | 1 K " " |
| R11 | " -473 | " | 47 K " " |
| R12 | " -473 | " | 47 K " " |
| R13 | " -473 | " | 47 K " " |
| R14 | " -473 | " | 47 K " " |
| R15 | " -473 | " | 47 K " " |
| R16 | " -473 | " | 47 K " " |
| R17 | " -473 | " | 47 K " " |
| R18 | " -473 | " | 47 K " " |
| R19 | " -102 | " | 1 K " " |
| R20 | " -473 | " | 47 K " " |
| R21 | " -473 | " | 47 K " " |
| R22 | " -473 | " | 47 K " " |
| R23 | " -473 | " | 47 K " " |
| R24 | " -473 | " | 47 K " " |
| R25 | " -473 | " | 47 K " " |
| R26 | " -473 | " | 47 K " " |
| R27 | " -473 | " | 47 K " " |
| R28 | " -102 | " | 1 K " " |
| R29 | " -473 | " | 47 K " " |
| R30 | " -473 | " | 47 K " " |
| R31 | " -473 | " | 47 K " " |
| R32 | " -473 | " | 47 K " " |
| R33 | " -473 | " | 47 K " " |
| R34 | " -473 | " | 47 K " " |
| R35 | " -473 | " | 47 K " " |
| R36 | " -473 | " | 47 K " " |
| R37 | " -473 | " | 47 K " " |
| R38 | " -473 | " | 47 K " " |
| R39 | " -473 | " | 47 K " " |
| R40 | " -473 | " | 47 K " " |
| R41 | " -473 | " | 47 K " " |
| R42 | " -562 | " | 5.6 K " " |
| R43 | " -103 | " | 10 K " " |
| R44 | " -103 | " | 10 K " " |
| R45 | " -103 | " | 10 K " " |
| R46 | " -103 | " | 10 K " " |
| R47 | " -104 | " | 100 K " " |
| R48 | " -104 | " | 100 K " " |
| R49 | " -104 | " | 100 K " " |
| R50 | " -562 | " | 5.6 K " " |
| R51 | " -103 | " | 10 K " " |
| R52 | " -103 | " | 10 K " " |
| R53 | " -103 | " | 10 K " " |
| R54 | " -103 | " | 10 K " " |
| R55 | " -104 | " | 100 K " " |
| R56 | " -104 | " | 100 K " " |
| R57 | " -104 | " | 100 K " " |
| R58 | " -562 | " | 5.6 K " " |
| R59 | " -103 | " | 10 K " " |
| R60 | " -103 | " | 10 K " " |
| R61 | " -103 | " | 10 K " " |
| R62 | " -103 | " | 10 K " " |
| R63 | " | " | " |
| R64 | QRD167J-104 | CR | 100 K 1/6 W J |
| R65 | " -104 | " | 100 K " " |
| R66 | " -104 | " | 100 K " " |
| R67 | " -562 | " | 5.6 K " " |
| R68 | " -103 | " | 10 K " " |
| R69 | " -103 | " | 10 K " " |

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|-------------|--------------|
| R70 | QRD167J-103 | CR | 10 K 1/6 W J |
| R71 | " -103 | " | 10 K " " |
| R72 | " -104 | " | 100 K " " |
| R73 | " -104 | " | 100 K " " |
| R74 | " -104 | " | 100 K " " |
| R75 | " -473 | " | 47 K " " |
| R76 | " -473 | " | 47 K " " |
| C 1 | QET61EM-106Z | E Cap | 25 10 V |
| C 2 | " -106Z | " | 25 " " |
| C 3 | " -106Z | " | 25 " " |
| C 4 | " -106Z | " | 25 " " |
| C 5 | " -106Z | " | 25 " " |
| S 1 | SCV0292-150 | Push Switch | |
| S 2 | " | " | |
| S 3 | " | " | |
| S 4 | " | " | |
| S 5 | " | " | |
| S 6 | " | " | |
| S 7 | " | " | |
| S 8 | " | " | |
| S 9 | " | " | |
| S10 | SCV0292-140 | " | |
| S11 | " | " | |
| S12 | " | " | |
| S13 | " | " | |
| S14 | " | " | |
| S15 | " | " | |
| S16 | " | " | |
| S17 | " | " | |
| S18 | " | " | |
| S19 | SCV0292-130 | " | |
| S20 | " | " | |
| S21 | " | " | |
| S22 | " | " | |
| S23 | " | " | |
| S24 | " | " | |
| S25 | " | " | |
| S26 | " | " | |
| S27 | " | " | |
| S28 | SCV0292-100 | " | |
| S29 | " | " | |
| S30 | " | " | |
| S31 | " | " | |
| S32 | " | " | |
| S33 | " | " | |
| S34 | " | " | |
| S35 | " | " | |
| S36 | " | " | |
| S37 | " | " | |
| S38 | " | " | |
| S39 | " | " | |
| S40 | " | " | |
| S41 | " | " | |

8.2.3 SB-2 Board Ass'y SCK1034-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|---------------|---------------|
| IC 1 | TC4532BP | I.C. | TOSHIBA |
| IC 2 | " | " | " |
| IC 3 | " | " | " |
| IC 4 | TD62502P | " | " |
| IC 5 | TC4051BP | " | " |
| IC 6 | TD60502P | " | " |
| IC 7 | TC4051BP | " | " |
| IC 8 | TD62502P | " | " |
| | | | |
| Q 1 | 2SA564R | Transistor | MATSUSHITA |
| Q 2 | 2SC828R | " | " |
| | | | |
| D 1 | MA165 | Silicon Diode | MATSUSHITA |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | " | " | " |
| D 6 | " | " | " |
| D 7 | " | " | " |
| D 8 | " | " | " |
| D 9 | 1S1555 | " | " |
| D10 | MA165 | " | " |
| D11 | 1S1555 | " | " |
| | | | |
| R 1 | QRD167J-102 | CR | 1 K 1/6 W J |
| R 2 | " -473 | " | 47 K " |
| R 3 | " -473 | " | 47 K " |
| R 4 | " -473 | " | 47 K " |
| R 5 | " -473 | " | 47 K " |
| R 6 | " -473 | " | 47 K " |
| R 7 | " -473 | " | 47 K " |
| R 8 | " -473 | " | 47 K " |
| R 9 | " -473 | " | 47 K " |
| R10 | " -473 | " | 47 K " |
| R11 | " -473 | " | 47 K " |
| R12 | " -473 | " | 47 K " |
| R13 | " -473 | " | 47 K " |
| R14 | " -473 | " | 47 K " |
| R15 | " -473 | " | 47 K " |
| R16 | " -102 | " | 1 K " |
| R17 | " -102 | " | 1 K " |
| R18 | " -473 | " | 47 K " |
| R19 | " -473 | " | 47 K " |
| R20 | " -473 | " | 47 K " |
| R21 | " -102 | " | 1 K " |
| R22 | " -102 | " | 1 K " |
| R23 | " -102 | " | 1 K " |
| R24 | " -473 | " | 47 K " |
| R25 | " -103 | " | 10 K " |
| R26 | " -103 | " | 10 K " |
| R27 | " -103 | " | 10 K " |
| R28 | " -562 | " | 5.6 K " |
| R29 | " -103 | " | 10 K " |
| R30 | " -104 | " | 100 K " |
| R31 | " -104 | " | 100 K " |
| R32 | " -104 | " | 100 K " |
| R33 | " | " | " |
| R34 | QRD167J-822 | CR | 8.2 K 1/6 W J |
| R35 | " -153 | " | 15 K " |

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|--------------|---------------|
| R36 | QRD167J-104 | CR | 100 K 1/6 W J |
| R37 | " -103 | " | 10 K " |
| R38 | " -103 | " | 10 K " |
| R39 | " -104 | " | 100 K " |
| R40 | " -104 | " | 100 K " |
| R41 | " -560 | " | 56 " |
| R43 | " -221 | " | 220 " |
| | | | |
| C 1 | QET41ER-106 | E Cap | 10 25 V |
| C 2 | " -106 | " | 10 " |
| | | | |
| S 1 | SCV0292-100 | Push Switch | |
| S 2 | " | " | |
| S 3 | " | " | |
| S 4 | " | " | |
| S 5 | " | " | |
| S 6 | " | " | |
| S 7 | " | " | |
| S 8 | " | " | |
| S 9 | " | " | |
| S10 | " | " | |
| S11 | " | " | |
| S12 | " | " | |
| S13 | " | " | |
| S14 | " | " | |
| S15 | " | " | |
| S16 | " | " | |
| S17 | SCV0292-120 | " | |
| S18 | OSL2218-111 | Lever Switch | |
| S19 | OSL2318-002 | " | |
| S20 | OSL2218-111 | " | |
| S21 | " | " | |
| S22 | " | " | |
| S23 | " | " | |
| S24 | " | " | |
| S25 | " | " | |
| | | | |
| CN 3 | SS31053-034 | Card Fit R | 34 P |
| CN 4 | SS30662-006 | Connector | |
| CN 5 | " -003 | " | |
| CN 6 | SS31053-004 | Card Fit R | 4 P |
| CN 7 | " -015 | " | 15 P |

8.2.4 SB-3 Board Ass'y SCK4010-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|--------------|-------------|
| S 1 | QSL2218-111 | Lever Switch | |
| S 2 | " -111 | " | |
| S 3 | " -111 | " | |

8.2.5 CK Board Ass'y SCK3040-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-------------|---------------|
| IC 1 | NJM4560D | I.C. | JRC |
| IC 2 | " | " | " |
| IC 3 | " | " | " |
| IC 4 | TC4053BP | " | TOSHIBA |
| | | | |
| Q 1 | 2SA564R | Transistor | MATSUSHITA |
| Q 2 | 2SC828R | " | " |
| | | | |
| D 1 | MA165 | Diode | MATSUSHITA |
| D 2 | " | " | " |
| D 3 | " | " | " |
| D 4 | " | " | " |
| D 5 | " | " | " |
| D 6 | " | " | " |
| D 7 | " | " | " |
| | | | |
| R 1 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R 2 | SCV0047-502 | VR | 5 K |
| R 3 | QRD167J-102 | CR | 1 K 1/6 W J |
| R 4 | SCV0047-502 | VR | 5 K |
| R 5 | QRD167J-102 | CR | 1 K 1/6 W J |
| R 6 | SCV0290-001 | VR | 1 K |
| R 7 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R 8 | " -102 | " | 1 K " |
| R 9 | SCV0047-502 | VR | 5 K |
| R10 | " -502 | " | 5 K |
| R11 | QRD167J-102 | CR | 1 K 1/6 W J |
| R12 | SCV0290-001 | VR | 1 K |
| R13 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R14 | SCV0047-502 | VR | 5 K |
| R15 | QRD167J-102 | CR | 1 K 1/6 W J |
| R16 | SCV0047-502 | VR | 5 K |
| R17 | QRD167J-821 | CR | 820 1/6 W J |
| R18 | SCV0290-001 | VR | 1 K |
| R19 | QRD167J-223 | CR | 22 K 1/6 W J |
| R20 | " -223 | " | 22 K " |
| R21 | " -473 | " | 47 K " |
| | | | |
| C 1 | QET61ER-107 | E Cap | 100 25 V |
| C 2 | " -107 | " | 100 " |
| C 3 | " -107Z | " | 100 " |
| | | | |
| CN8 | SS31053-004 | Card Fit R | |
| CN9 | " -005 | " | |
| CN10 | " -016 | " | |
| | | | |
| | | SS30644-004 | Post Header |

8.2.6 BCC Board Ass'y SCK3037-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|------------|---------------|
| IC 1 | NJM4560D | I.C. | JRC |
| IC 2 | " | " | " |
| | | | |
| R 1 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R 2 | SCV0046-502 | VR | 5 K |
| R 3 | QRD167J-103 | CR | 10 K 1/6 W J |
| R 4 | SCV0046-502 | VR | 5 K |
| R 5 | QRD167J-103 | CR | 10 K 1/6 W J |
| R 6 | SCV0046-103 | VR | 10 K |
| R 7 | SCV0290-001 | " | 1 K |
| R 8 | SCV0046-502 | " | 5 K |
| R 9 | SCV0290-001 | " | 1 K |
| R10 | QRD167J-223 | CR | 22 K 1/6 W J |
| R11 | SCV0046-103 | VR | 10 K |
| R12 | SCV0290-001 | " | 1 K |
| R13 | QRD167J-392 | CR | 3.9 K 1/6 W J |
| R14 | SCV0046-502 | VR | 5 K |
| R15 | QRD167J-221 | CR | 220 1/6 W J |
| R16 | " -221 | " | 220 " |
| R17 | " -221 | " | 220 " |
| | | | |
| C 1 | QET61EM-107 | E Cap | 100 25 V |
| | | | |
| CN10 | SS31053-005 | Card Fit R | |

8.2.7 DS Board Ass'y SCK3036-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|--------------|------------|---------------|
| IC 1 | NJM4560D | I.C. | JRC |
| IC 2 | " | " | " |
| | | | |
| R 1 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R 2 | SCV0046-502 | VR | 5 K |
| R 3 | QRD167J-103 | CR | 10 K 1/6 W J |
| R 4 | SCV0046-502 | VR | 5 K |
| R 5 | QRD167J-103 | CR | 10 K 1/6 W J |
| R 6 | SCV0046-103 | VR | 10 K |
| R 7 | SCV0290-001 | " | 1 K |
| R 8 | SCV0046-502 | " | 5 K |
| R 9 | SCV0290-001 | " | 1 K |
| R10 | QRD167J-223 | CR | 22 K 1/6 W J |
| R11 | SCV0046-103 | VR | 10 K |
| R12 | SCV0290-001 | " | 1 K |
| R13 | QRD167J-472 | CR | 4.7 K 1/6 W J |
| R14 | SCV0046-502 | VR | 5 K |
| | | | |
| C 1 | QET61EM-107Z | E Cap | 100 25 V |
| | | | |
| CN14 | SS31053-005 | Card Fit R | |

8.2.8 AU Board Ass'y SCK3038-00A

| Symbol No. | Part No. | Part Name | Description |
|------------|-------------|-------------|--------------|
| IC 1 | NJM4560D | I.C. | JRC |
| Q 1 | 2SC828R | Transistor | MATSUSHITA |
| R 1 | QRD167J-103 | CR | 10 K 1/6 W J |
| R 2 | " -103 | " | 10 K " " |
| R 3 | " - | " | " " " |
| R 4 | QRD167J-101 | CR | 100 1/6 W J |
| R 5 | " -221 | " | 220 " " |
| C 1 | QET61EM-106 | E Cap | 10 25 V |
| S 1 | SCV0292-130 | Push Switch | |
| CN12 | SS31053-008 | Card Fit R | |